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EXPLAINING CULTURE

A CONSTRAINT-BASED APPROACH

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Supervisor:
Dr. Kepa Korta Carrión

Donostia, **2017**

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Table of contents

Preface

Gure hitzak
Esan berriz esan
Ez daitezela ahaztu
Ez daitezela gal
Elur gainean
Txori hanka arinek
Utzitako arrasto sail
Ederra bezalaxe.
Bernardo Atxaga

Bernardo Atxaga's poem, popularized by Mikel Laboa's song, illustrates a common intuition about languages and cultures: Our words need to be said, and said again, if they are not to be forever lost. Likewise for cultures. They must be repeated not to be forgotten, to endure. If they are not, they die. This is how languages, artifacts, customs, gestures, tales fade away from a group of humans, like "light birds's footprints in the snow." Not to mention cultural oppression, ethnocide or cultural assimilation where the possibility of re-producing culture is stopped, or directly erased. Continuing with the metaphor, when the snow melts or more snow falls, the shape of footprints transforms and changes. Human memory and transmission mechanisms are not perfect, and many things are lost. Others are changed. And new things are created.

This poem captures one of the main worries of the community of Basques. Losing our language, Euskara, and with it, the most distinctive constituent of our culture. My mother tongue is Spanish, and the reason for that was not natural but cultural: my grandfather forbade my grandma to speak Basque to her sons and daughters. Cultural struggle is embedded in whatever we mean by "Basque culture."

This is too much responsibility for a single word like “culture.” Why do I say “too much responsibility”? The answer is quite simple: two opposite roles have been assigned to the word “culture.” First, it is supposed to refer to the main distinctive quality of the human species, the one that distinguishes us from the other species, and, at the same time, puts all humans on an equal footing. But, second, it is also taken to refer to what makes the different human groups different from each other. In a nutshell, culture ties up all humans together, and it separates us in groups; it is the glue that makes individuals a group, and it is the barrier that keeps individuals out of groups.

The notion of culture itself is a mess, or humans make a mess by using (or abusing) such a notion; or, perhaps, both. Fortunately, it has become a very important object of inquiry for the social sciences in the last hundred years or so. I was born in a place where we need and want to solve a problem in which culture plays a critical role. Most likely, this has been the reason why I was attracted to the topic of this dissertation. I hope have shed some light on it.

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1. Introduction

> [P]hilosophy is the culture of the mind: this it is which plucks up vices by the roots; prepares the mind for the receiving of seeds; commits them to it, or, as I may say, sows them, in the hope that, when come to maturity, they may produce a plentiful harvest.
>
> Cicero, *Tusculanae Disputationes*: 69

Humans are cultural animals. However we understand the notion, culture is taken to be one of the two factors that make us human. The other is, of course, nature. Nature is what we share with other animals. Culture is our distinctive good. "[H]umans, as distinct from other animals have a culture—that is, a social heritage—transmitted not biologically through the germ cells but independently of genetic inheritance." (Jacobs and Stern 1947: 2).

Humans are also said to be political animals and linguistic animals. Politics, however, is understood as part of culture; and, language, as involving both natural and cultural elements. Culture and nature exhaust the sources of human heritage from generation to generation. Nature does it via adaptation, evolution and DNA. Culture does it in ways that we do not wholly understand yet.

Culture shapes us as species, and at the same time, shapes different groups and societies differently: "(…) the difference between groups is the difference in their cultures, their social heritage" (Davis and Dollard 1940: 4). Cultures arise, evolve and, perhaps, disappear. Or they resist the passage of time. Some are permeable and merge with others. Most likely, there are some cultures that are still isolated. Anthropology, sociology, and the social sciences in general study culture from that perspective. Yet, there are some questions that have not received appropriate answers, for example: *What is culture?* That is to say, *what kind of stuff is culture made of? How is that stuff shared by human populations, groups, societies? By non-genetic transmission only? What do we mean by non-genetic transmission?* And many others. In this work, I consider various answers to some of these questions, and I give my own.

1.1. Culture as an object of study

The social sciences started considering culture as an object of study in the second half of the nineteenth-century. It is in 1871 that the anthropologist Edward Burnett Tylor gave what is considered to be the first "technical" definition of culture:

> Culture, or civilization, taken in its wide ethnographic sense, is that complex whole which includes knowledge, belief, art, law, morals, custom, and any other capabilities and habits acquired by man as a member of society. (Tylor 1871: 1)

The principal features of culture in this definition are, first, that culture is a complex, an aggregate of variegated "things" such as psychological states of individuals (knowledge, beliefs, ideas), social or institutional rules (laws, morals, customs), other stuff which are not easy to classify (art, values, artifacts) and an open list of capabilities and habits. Second, the ways these last capabilities and habits are specifically those acquired by

persons by them as *members of a society*. And third, we can understand that the same goes for the initial items in the list. It is not any knowledge or belief, or custom or habit, that is cultural, but only those acquired by the person *qua* member of society. It is difficult to know what that exactly means, especially in the case of acquiring art, but I take it that it is pointing towards the acquisition of culture by non-genetic means within a "society".

Commenting on Tylor's multifarious list, Jesse Prinz makes the following remark:

> Subsequent authors have worried that Tylor's definition packs in too much, lumping together psychological items (e.g., belief) with external items (e.g., art). This would be especially problematic for those who hope that culture could be characterized as a natural kind, and thus as a proper subject for scientific inquiry. Other definitions often try to choose between the external and internal options in Tylor's definition. (Prinz 2011: 2)

In order to get an idea of the consequences of this problem, one just needs to have a look to the 165 definitions of culture from the social sciences collected by Kroeber and Kluckhohn (1952) since Tylor's 1871 definition. They classified those definitions into the categories of descriptive, historical, normative, psychological, structural and genetic.[1]

After the work of collecting and analyzing definitions of culture, Kroeber and Kluckhohn realized that,

> [O]ne thing is clear to us from our survey: it is time for a stock-taking of notes, for conscious awareness of the range of variation. Otherwise the notion that is conveyed to the wider company of educated men will be so loose, so diffuse as to promote confusion rather than clarity. [footnote 5: One sometimes feels that A. Lawrence Lowell's remarks about the humanistic concept of culture is almost equally applicable to the anthropological: "... I have been entrusted with the difficult task of speaking

[1] See Kroeber and Kluckhohn 1952. Notice that all these categories are grounded in the the first descriptive one, which they characterize as *enumerative*, and of which Tylor's is the model.

> about culture. But there is nothing in the world more elusive. One cannot analyze it, for its components are infinite. One cannot describe it, for it is a Protean in shape. An attempt to encompass its meaning in words is like trying to seize the air in the hand, when one finds that it is everywhere except within one's grasp." (1934, 115)]" (Kroeber and Kluckhohn 1952: 4)

The point was to analyze the definitions and see if some consensus was possible to shed some light and open the way to develop a science of culture. This was very important because the "culture concept of the anthropologists and sociologists [was] coming to be regarded as the foundation stone of the social sciences" (Chase 1948: 59). But consensus was not reached.

Basically, the main problem in the 50's, was that the social sciences were divided between the ones that argued, on the one hand, that culture was "an abstraction from concrete human behavior, but … not itself behavior" (Kroeber and Kluckhohn 1952: 155)— or "culture itself is intangible and cannot be directly apprehended even by the individuals who participate in it" (Linton 1936: 288-89), it is "intangible" (Herskovits 1945: 150), or "the anthropologist cannot observe culture directly" (Beals and Hoijer 1953:210)—and, on the other hand, the ones that consider that the way culture was talked about was, to say the least, vague, and puts in question its very existence: "If it [culture] can be said to exist at all. ..." (Linton 1936: 363), "[it] denotes, not any concrete reality, but an abstraction, and as it is commonly used a vague abstraction." (Radcliffe-Brown 1940: 2). Spiro adds that according to the predominant "position of contemporary anthropology ... culture has no ontological reality...." (1951: 24).[2]

Moreover, in 2005, Baldwin et al. collected a further 300 definitions (to those of Kroeber and Kluckhohn (1952)), albeit with a different perspective:

[2] For the debate in the 50s on the scientific status of culture see White 1959.

> [C]ulture shifted [in the second half of the twentieth-century] from being an object of study to becoming, under these various paradigms and their definitions, a flexible tool for study in the service of different analytical projects. Whereas culture was once seen as static and unchanging, a set of patterns or forms shared among members of a group, it became a tool used to study the convergence of power, inequality, and history. (Baldwin et al. 2005: xii)

Baldwin et al. did not collect definitions of culture with the goal of finding a unifying definition that would allow a scientific project, and provide anthropology with "scientific" status. They just described the current academic and philosophical landscape of the term "culture" since the "Kroeber-and-Kluckhohnesque version of culture [is] inadequate for describing the current academic and philosophical landscape of the word" (Baldwin et al. 2005: 16).[3]

Thus, we can say, that the project to reach a consensus on the definition of culture has failed. Kroeber and Kluckhohn made a key observation, which the current naturalistic approaches take as a departure point: the idea that "in anthropology at present we have plenty of definitions but too little theory" (Kroeber and Kluckhohn 1952: 181).

The mismatch, represented by both collections of definitions, and the problem pointed out by Jesse Prinz, of "packing too much" into the definition of culture, are the main challenges in the social sciences. In a nutshell, this is the main problem: if we want to bring cultural items such as artifacts and artworks together with mental or abstract entities like beliefs and rules, then how are they to be integrated into a comprehensive notion of culture in a scientific way?

This lack of consensus in the 1950s could be attributed to the lack of theoretical resources, which was Kroeber and Kluckhohn's 1952 diagnosis. Yet, it was at that time

[3] See Baldwin 2005 and Clifford & Marcus 1986 for criticisms of attempts to naturalize culture.

that the discoveries that allowed the birth and development of naturalistic explanations of culture, started to be available.

> Until the cognitive revolution of the second half of the twentieth century, mental phenomena had no counterpart in the natural sciences. One could, of course, assert that mental phenomena occurred in the brain and postulate that they were wholly material, but there was no understanding whatsoever of how matter in general and brain tissues in particular might realize mental processes. The choice was then between pursuing a non-naturalistic psychology, and, as did behaviorists, pursuing a naturalistic psychology understood as a science not of the mind but of behavior. With the development of the mathematical theory of automata on the one hand, and of the neurosciences on the other, it is now possible to understand how matter in general and brain tissues in particular can process information. (Sperber 2011: 67)

Apart from the contributions of the "cognitive revolution" (Chomsky 1959), the "mathematical theory of automata" (Turing 1936), and communication (Shannon 1948), mentioned by Sperber, the second half of the nineteenth-century and first half of the twentieth-century brought the "theory of evolution" (Darwin 1968 [1859]), the "discovery of genes" (Mendel 1996 [1866]) and the "evolutionary synthesis" (developed between 1920 and 1940 by R. A. Fisher, J. B. S. Haldane, and Sewell Wright).[4]

Each of those developments in other areas has provided the theoretical machinery for explaining culture in more naturalistic ways (in causal terms without appealing to other realms) and "allowed these informal intuitions [about culture] to be tested far more precisely than is possible with informal, verbal arguments and thought experiments" (Mesoudi 2011: 49). Or as Sperber said in *Explaining Culture. A Naturalistic Approach,*

[4] See Mayr 2000 for the development of the modern theory of evolution, and Mesoudi 2011: 55-83 for the applications of biological evolutionary models to culture.

> A spectre haunts the social sciences, the spectre of a natural science of the social. Some wait for the day that the spectre will make itself known, and will at last make the social sciences truly scientific. Others denounce the threat of scientism and reductionism. Some say they speak for the spectre. Others say it is just a hoax. Here is what I think: in lieu of a spectre, there is just a child in limbo. A naturalistic programme in the social sciences is conceivable, but it has yet to be developed. In this book, I present a fragment of such a programme: a naturalistic approach to culture. (Sperber 1996: vi)

Current naturalistic approaches first appeared in the 1970s and 80s applying those developments in other disciplines to the study of culture, and providing culture with material grounds. They focused on explaining "that complex whole" that Tylor pointed to more than a century ago. But if culture *is just a set of transmitted items,* then what are those things that we typically call *cultural items?*

This is the target question of the present dissertation. I contend that naturalistic approaches are missing something in their explanations, and what they are missing is to be found using a notion from a theory of information and language born in the 80s: the notion of *constraints* from Situation Theory (Barwise and Perry 1999 [1983]). The present dissertation it is not a work of anthropology or sociology. It is an attempt to provide a basis that naturalistic approaches require: the basis for an adequate account of what constitutes the subject matter of culture.

1.2. Outline

In Chapter 2, I present some basic notions of Situation Theory—especially, the notions of *situation*, *constraint* and *attunement*—which, as I argue, are key to rethinking the subject matter of culture. In Chapter 3, I present and criticize the three main naturalistic theories of culture: the epidemiology of representations, memetics and the standard

evolutionary approaches. I conclude that, despite their differences, they are all versions of what I call the "Itemic View of Culture." Then, in chapter 4, I develop my own approach, which I call a "Constraint-Based Approach," which results from an application of the notions of constraint and attunement to the analysis of culture. Chapter 5 is devoted to the comparison of these two views, concluding that the view I defend is a necessary complement to the Itemic View. Finally, in Chapter 6, I draw my main conclusions and indicate directions for future research.

2. Constraints and Attunement

Critical Notions for an Enquiry into Culture

> What underlies the phenomenon of information is the fact that reality is lawlike; that what is going on in one part of reality is related to what is going on in some other part of reality, by laws, nomic regularities, or as we shall say, *constraints*.
>
> Israel and Perry 1990: 3

2.1. Introduction

If there is a notion that is crucial for the present explanation of culture, it is the notion of "constraint." As I have already said, I think that constraints are missing in the main naturalistic accounts, or, at best, their presence is left implicit. Either way, this causes a significant lacuna in their respective explanations, which I will discuss in Chapter 5. There I attempt to argue for the use of the notion of constraints in a naturalistic approach to culture. But first, I need to explain what constraints are.

My notion of "constraints" comes from Situation Theory, a "qualitative" theory of information that allows the classification of real situations in a clear way by modeling them. This theory was developed by Jon Barwise and John Perry starting in the 80's,

first outlined in the paper "Situations and attitudes" (1981) and further elaborated in their book *Situations and Attitudes* (1999 [1983]).

2.2. Situations

The central notion in Situation Theory is the notion of a "situation". It corresponds, roughly, to our intuitive notion of a situation: me, here right now typing these words; the football match in Anoeta yesterday; our family dinner in Gasteiz last Christmas; the first two months of Trump's presidency in the USA… Small or big, remote or in my closest vicinity, situations are *parts* of the world we live in, they are "basic and ubiquitous. We are always in some situation or other" (Barwise and Perry 1981: 668).

Situations are parts of the world we live in. We cause them to come about (e.g. I'm typing these words now); we perceive them (Eros saw the football match in Anoeta yesterday); we think about them (I think that our family dinner in Gasteiz last Christmas was fun) or talk about them (as I'm doing now). We do all this because our cognitive activity categorizes situations in terms of "objects having attributes and standing in relations to one another at locations—connected regions of space-time" (Barwise and Perry 1981: 668).

2.2.1. States of affairs

There are many things going on in situations. Whatever the size of situations, there are an indeterminate number of things going on in them. In the situation I characterize as "me, here right now typing these words," all the following is going on:

- *Josu is sitting on a particular chair*
- *Josu is in front of a particular computer*

- *Josu is typing on the computer's keyboard*
- *Josu is breathing*
- *The computer is on*
- *The computer is working…*

Those states and events that occur in situations are what Situation Theory calls *states of affairs*.

Since there are an indeterminate number of states of affairs going on in a situation, we, as living organisms products of evolution, pick up the ones relevant to us and identify situations according to those relevant states of affairs. If I am crossing a street, I see a car that is coming towards me while crossing and the driver is not slowing down, I would not identify the situation as "the driver of the car is breathing," "the driver is sitting in the car," "the car is red," "the car wheels are spinning," and so on. I most probably will identify the situation as "a car coming towards me". It is relative to what we identify is going in situations that we behave in one way or another. Thus, if I identify the situation as "a car coming towards me" my way of behaving would be to run, which may not occur if the situation is identified as "the driver breathing" or "the car being red," although those states of affairs are taking place in the situation.

Objects, relations and locations

Objects, relations and space-time locations are the building blocks of states of affairs. Situation Theory pulls them out from real situations and takes them as "primitives" for representing the "internal structure" (Barwise and Perry 1999 [1983]: 53) and the relations between situations.

In short, objects are real individual things like me, a particular chair, or a croquette. In Situation Theory, *relations* are also part of the furniture of the world, e.g. sitting on,

scoring, eating. Relations have arguments. Relations with only one argument are called *properties*.[5]

Locations are spatio-temporal chunks of space and time, that is, regions of space and moments or time intervals, such as here, now, Anoeta yesterday (5 to 7pm), my aunt's home the night of December 25th, or the US during the last two months.

Objects, relations and locations are items that we find and recognize across different situations. Think about the following situation, Josu (me) sitting on a chair at ILCLI now (March 8th of 2017, at 11:00 am). The objects (Josu and the chair) and the relation (SITTING-ON) were also part of other situations, for example, the situation in which I was sitting on the same chair yesterday at ILCLI. In short, objects, relations and locations are invariants or "uniformities," using situation-theoretic terminology.

What goes on in situations is what situation theory calls "states of affairs" or "infons." In the situation I'm in right now, we can consider whether it is a fact that I'm sitting on a chair. That is a state of affairs that can be represented as follows:

σ_1: <<SITTING-ON, Josu, chair, at ILCLI room C8 - March 8th-11am; 1>>

The state of affairs σ_1 is constituted by a relation (SITTING-ON), its arguments (Josu and a particular chair) and a spatio-temporal location (ILCLI room C8, right now). The number 1 after the semicolon is the *polarity item* of the state of affairs, which represents that the arguments stand in that relation at that spatio-temporal location. The state of affairs with the same relation, arguments and spatio-temporal location but with a 0 as the polarity item is called the *dual* of σ_1, which I represent as $\bar{\sigma_1}$:

[5] See Barwise and Perry (1999 [1983] 7-9, 50-51) for a detailed account concerning the terminology. See also Devlin (1991) for the term "infon."

$\bar{\sigma_1}$: <<SITTING-ON-A-CHAIR, Josu, ILCLI room C8, March 8th-11am; 0>>

and means that the arguments do not stand in that relation at that spatio-temporal location.

Call **s** my present situation here. As I said, I'm sitting in a chair right know. σ_1 is a fact in **s**, or using situation-theoretic notation:

$\mathbf{s} \models \sigma_1$

which is read as, "the situation **s** supports σ," "**s** makes it the case that σ" or "**s** makes σ factual."

Of course, if **s** supports σ_1, then it doesn't support its *dual*, $\bar{\sigma_1}$. It cannot be the case that **s** supports the state of affairs σ_1 (me sitting on a chair here right now) and $\bar{\sigma_1}$ (me not sitting in that very same chair, here right now). In general, if a situation supports a state of affairs σ, then, that situation does not support its dual, $\bar{\sigma}$. Or, in other words, situations are *coherent*.

On the other hand, it is not the case that, for any state of affairs σ and any situation *s*, the situation either supports σ or supports its dual $\bar{\sigma}$. The situation may remain "silent" about the issue of whether σ or its dual $\bar{\sigma}$ is a fact, because situations are *partial*. We may consider that there is a *total* situation called "the world" that determines for all state of affairs σ, whether σ or its dual $\bar{\sigma}$ is the case, but situations, being partial portions of the world do not resolve all issues.

Also, situations support more state affairs than just one. That is, typically, in any situation there are many things going on. In my present situation **s** there is an indeterminate number of states of affairs which are supported by it:

σ_2: <<TYPING, Josu, words, ILCLI room C8 - March 8th-11am; 1>>

σ_3: <<IN-FRONT-OF, Josu, computer, ILCLI room C8 - March 8th-11am; 1>>

σ_4: <<LEFT-OF, Josu, Kepa, ILCLI room C8 - March 8th-11am; 1>>

σ_5: <<SLEEPING, Josu, ILCLI room C8 - March 8th-11am; 0>>

and so on.

The states of affairs supported by a situation can be taken to represent *information* that the situation *contains*. Thus, we can say that my present situation **s** contains the information represented in σ_1, σ_2, σ_3, σ_4 and σ_5. But just to be clear **s** does not "say" anything about the following state of affairs

σ_6: <<SLEEPING, Yolanda, at home - March 8th-11am; 1>>

or about its dual, $\bar{\sigma_6}$.

Thus, **s** does not contain the information that Yolanda is sleeping in her home or that she is not. Following Situation Theory, **s** is "silent" about σ_6 or $\bar{\sigma_6}$ (Barwise and Perry 1999 [1983]: 98) because these states of affairs "belong" to a different situation **s'**, which might support σ_6 (or $\bar{\sigma_6}$) or not.

2.2.2. Types of situations

Once again, in my present situation **s**, σ_1 is a fact. That is,

$$\mathbf{s} \models \langle\langle \text{SITTING-ON, Josu, chair, at ILCLI room C8 - March } 8^{th}\text{-11am; 1} \rangle\rangle$$

s is a real situation that supports, among others, a state of affairs in which some objects stand in a relation at a particular location. Objects, relations and locations are items that we find and recognize across different situations. The objects (Josu and the chair) and the relation (SITTING-ON) are also part of other situations, for example, the situation in which I was sitting on the same chair yesterday at ILCLI.

Objects, relations and locations are invariants or "uniformities," using situation theoretic terminology. Situation Theory pulls out those uniformities from real situations and uses them as "primitives" for representing the "internal structure" and relations between situations (Barwise and Perry 1999 [1983]: 53). This allows us to identify that the real situation **s**, for instance, is a situation of various sorts or types. It belongs to the type of situations in which Josu is sitting on a chair in the ILCLI room C8, no matter when; or to the type of situations in which Josu is sitting on a chair somewhere, sometime; or the situations in which Josu is sitting; or situations in which someone is sitting… The point should be rather obvious by now. Abstracting from the constituents of a state of affairs, we can build all sorts of types of situations. Thus, for instance, we can abstract upon the spatio-temporal location and consider the type of situation *S* in which I am sitting on a chair as the class of situations that support states of affairs with the relation SITTING-ON, me, a chair, and the polarity item 1, namely,

$$S=\{s: \models \langle\langle \text{SITTING-ON, Josu, chair, l; 1} \rangle\rangle\}$$

and all sorts of types of situations involving me, such as the types of situations in which I am eating lunch or the types of situations in which I am typing on my computer keyboard:

S'={s: ⊨<<EATING-LUNCH, Josu, l; 1>>}

S''={s: ⊨<<TYPING, Josu, Josu's computer, l; 1>>}

My present situation **s** is of types S and S'', but it's not of type S'. We can say that being aware of the situation I'm living in is to *classify* it in terms of the types of situation it belongs (or doesn't belong) to. In other words, identifying the state of affairs supported by a situation (the information contained in the situation) amounts to classifying the situation as belonging to certain types.

Types of situation are central to distinguish the information *contained* in a situation and the information *carried* by it.

2.2.3. Containing versus carrying information

As we have seen, states of affairs supported by a situation can be taken to represent *information* the situation *contains*, but besides situations *containing* information, they *carry* information about other situations more or less spatio-temporally remote. To illustrate the difference between containing and carrying information in a situation, imagine the following situation. You are walking in Gladys Enea Park this morning and you find a stump. The following is information contained in the situation, i.e. a state of affairs supported by the situation:

σ_7: <<NUMBER-OF-RINGS, stump, seven, Gladys Enea Park, March 15-10am; 1>>

This is a fact, a state of affairs supported by the situation. It is also information contained in **s** that you get. But you learn in school that tree rings revealed in a cross section cut of a tree (the case of a stump) indicate the age of the tree in question. So, by getting the information of σ_6 contained in **s** you learn that the tree was seven years old when it was cut. Nevertheless, this is information about a different situation; a situation that contains the same tree but at a different time (the time when it was cut).

The situation with the tree stump in Gladys Enea Park carries information about the age of the tree at the time it was cut, the sort of tool that was (or wasn't) used to cut it, the direction to the north pole relative to the tree now, and so on; situations of many sorts all different from the situation I'm in. In the situation I'm in there is a tree-stump with *n* rings, and this carries the information that that tree had *n* years when it was cut. The cut is flat and clean, it was not cut with an axe. The stump has moss on this side, this side points to the north.

This sort of information is not exclusive to this particular situation with this particular stump, but the result of certain law-like regularities between types of situations: situations containing (some kind of tree) with a number of rings and situations involving their age, the way they were cut down, or the relation between moss and the direction north (in the northern hemisphere). In Situation Theory, these law-like regularities are called *constraints*.

2.3. Constraints

Constraints are relations between types of situations. For example, the constraint that *S involves S'* (*S => S'*) states that if there is a situation of type *S,* then there is a situation of type *S'*.

In our last example, the constraint links the type of situation with trees with *n rings* with the type of situation with trees with *n years*. Constraints hold (or don't) "out there" in the world and account for the flow of information occurring between real situations:

> These constraints are what provide reality with a structure that supports the flow of information in general and linguistic communication in particular. (Barwise & Perry 1999 [1893]: 97)

Some constraints are *ubiquitous* or *unconditional*, holding at every spatio-temporal location or at the universal location, if we accept such a thing, together with a total situation (the world). But other constraints, perhaps most, are *conditional*, "holding only under certain special circumstances or conditions" (Barwise and Perry 1999 [1983]: 94). Some of them, like our ring-years example, hold in natural environments. Barwise and Perry call these sorts of constraints "nomic structural constraints": "The usual models for natural laws or nomic constraints are the very general laws of science, the laws we study in physics and chemistry" (Barwise and Perry (1999 [1983]: 98). Some other constraints are conventional. They arise out of situation and types of situations involving human beings. Obviously, conventional conditional constraints are especially relevant for our purposes. The kind of constraints involved in culture are precisely these. Let us see what conventional constraints are and their main similarities and differences with natural ones.

2.3.1. Natural constraints

According to Situation Theory, we can divide constraints roughly into two main kinds: natural and conventional.

Natural constraints are "inviolable patterns in nature… patterns that are usually called natural laws" (Barwise and Perry 1999 [1983]: 98). For example, if I am holding a pen and I drop it, then it will fall. It can be formulated like this:

C: if any x drops the pen s/he is holding, then the pen will fall.

One may be tempted to think that since these constraints are inviolable they always hold. Nonetheless, natural constraints are environment dependent, i.e. they are local. *C* is a natural constraint that holds in a certain environmental setting *l (the planet Earth)*. In the International Space Station, however, *C* does not hold. This is because, apart from being natural, *C* is also conditional. If I recognize the situation **s** as a type of situation S in which someone is dropping a pen, thanks to *C* I'll anticipate an immediate situation **s'** of type *S'* in which that pen falls.[6] However, if I am in the International Space Station and one of my companions drops the pen she is holding, *C* will provide me wrong information about the next situation, since in the International Space Station *C* does not hold. Instead *C'* holds in *l'* (the International Space Station)

C': If any x drops the pen s/he is holding, then the pen will float.

Natural constraints are thus the constraints that scientists look for, are the ones that "[constrain] the way things can fall out" (Barwise and Perry 1999 [1983]: 18).

[6] See McIntyre et al. (2001) for an experiment involving catching a baseball in the space.

In a few words, the situation **s** carries information about the situation **s'** relative to the constraint *C: S ⇒ S'*. And when an organism is attuned to this constraint, it exploits the constraint to extract information about **s'** from **s.**

This notion of attunement has clear parallelisms with notions such as know-how and implicit knowledge (and cognition). However, going further than an intuitive elucidation of these concepts is beyond the scope of the present work.[7] My concern is with humans and their culture, and as it will become clear, a distinction between explicit (representational) knowledge and attunement will prove useful. I contend that humans can know a constraint and not be attuned to it; and, conversely, can be attuned to it without knowing it. I will clarify this shortly. It will be helpful, however, to say a bit more about conventional constraints.

2.3.2. Conventional constraints

Conventional constraints are the most important ones for our topic, because as we shall see in Chapter 4, what I call "cultural constraints" are conventional constraints with some special features.

Conventional constraints are the ones that "arise out of explicit or, more often, implicit conventions that hold within a community of living beings" (Barwise and Perry 1999 [1983]: 98). Examples of conventional constraints are the giving of two kisses to a woman when greeting her or the ring of a bell to let students know that the class has finished.

These constraints arise in a community of living beings and hold if they are exploited in their community environment. That is to say, conventional constraints are

[7] For Barwise's reply to Fodor's critique of attunement as blatantly behavioristic (and, therefore, hopeless) or implicitly intentionalistic (and therefore useless), see Barwise 1989:141-142.

local. For example, the way of greeting varies in different places and my way of greeting women by giving them two kisses is only held by a particular community. I follow the constraint C_1: if I give a woman two kisses, then I am greeting this woman, but in other groups the constraint might not hold. Instead, another constraint C_2 might hold: if I give two kisses to a woman, then I am offending that woman and her family.

Another important feature of conventional constraints is that they are violable. These constraints relate two situations in a way such that they "only [constrain] the way things fall out when the convention is not violated" (Barwise and Perry 1999 [1983]: 18). For example, conventional constraints "governing" greetings can be violated. There is a constraint operating in my community environment that relates a person greeting some other person, and that other person returning the greeting. However, you may greet me, but I can violate the constraint by, for whatever reason, not greeting you back. In the same way, the ring of a bell in a school carries the information that the class is finished (in many schools), but it can be the case that a class has been punished with one more hour of Mathematics, violating then the constraint.

The existence of conventional constraints depends on people exploiting the constraint. Conventional constraints are not imposed upon us by nature but established by us, both individually and socially, and are maintained as long as they continue being exploited. A clear example of this is the case of language.

As we know, the main goal of Situation Semantics is to find out what the constraints in language are, and these constraints are conventional:

> Our knowledge of language consists primarily of *implicit* knowledge about *implicit* conventional constraints. That is, to know English (…) is all knowledge about various conventional constraints that hold within our linguistic community. And it is this

> implicit knowledge that those of us who study language attempt to make explicit. (Barwise and Perry 1999 [1983]: 98-99)

I think that this is right about language. On the one hand, by knowing a language we usually mean having an "*implicit* knowledge about *implicit* conventional constraints," in my terminology that is to be *simply attuned* to conventional constraints. On the other hand, the conventional constraints of a language holding within a linguistic community involves a set of individuals having this implicit knowledge about those conventional constraints. But this is not the case, I think, for all conventional constraints.[8]

Conventional constraints can be individual

As I take the concept of convention and, hence, the notion of conventional constraints, it is possible for an individual to create a conventional constraint without the involvement of any group or set of other individuals. Take the example of my method of organizing my notes for the present work. The colors of post-it-marker stand for various crucial notions: blue is for "constraint," green for "culture," yellow for "epidemiology of representations" and red for "meme." The post-its help me find those notions across the papers on my desk. As I use this method systematically, I establish four constraints, four systematic relations between types of situations, or regularities,[9] where a tab of the color

[8] Of course, this is oversimplified. I talk a bit more about our implicit knowledge of (or, as I prefer to say, attunement to) linguistic constraints below, but note that I am talking here about the implicit knowledge of a particular natural language, and not about the process of *acquisition* of the language, which, admittedly, can be driven biologically through a natural language acquisition device (Chomsky 1965). As I see it, we are naturally endowed to acquire any language, and that has to do with natural constraints. But then, as a product of the acquisition of one particular language and not another, we become attuned to one particular set of *conventional* constraints and not another. See more on language as conventional constraints in Chapters 4 and 5.

[9] It is generally agreed that conventions are as Lewis (1975: 4) said "regularities in action, or in action and belief".

x on a page involves that the concept *y* appears in that page. I think these constraints deserve to be considered conventional even if they are entirely personal.

I am not giving a general account of what "conventions" are. But I think it is reasonable to label purely individual constraints, such as my post-it constraints, as conventional, insofar they share the features of conventional constraints: they are violable (I can put in a yellow color post-it a note about "culture"), they depend on my (implicit) knowledge, and they are established by non-genetic means, if they are established at all.

Thus, as I take it, a conventional constraint does not require a community per se. We don't need to think about conventional constraints as a coordination problem between individuals (Lewis 2002 [1969]), as regularities in action or in action and belief, nor as products of an implicit or explicit "common interest" (Lewis 1975: 4), requiring always more than one individual.[10]

If we accept that a convention can be purely individual, then, conventional constraints need not be cultural, while all cultural constraints are necessarily conventional. This rests on the fact that a conventional constraint can arise from the behavior of just one individual, like my way of organizing papers by post-its with different colors.

2.3.3. Natural versus conventional constraints

I have sketched that constraints can be divided roughly into two main kinds: natural and conventional. Typically, both are conditional, i.e. non-necessary constraints.[11] They

[10] Unless we take the past, present and future stages of a person as different individuals which coordinate.

[11] The only examples of necessary constraints they consider are necessary or analytic truths like the truths in mathematics (Barwise and Perry 1999 [1983]: 97).

hold in certain environments and not in others. In the same way that constraint *C* (if any *x* drops the pen she is holding, then the pen will fall) only holds in certain environments, conventional constraints are also local. Thus, they arise in a community of living beings and hold if they are exploited in this community's environment.

Nonetheless, there are important differences between the two. On the one hand, natural constraints are natural laws, the kind of constraints natural scientists look for. Conventional constraints, on the other hand, connect two situations in virtue of a systematic but violable relation established by people. For example, the ring of a bell in a school carries the information that the class is finished (in many schools), but it could have carried the information that "whoever lies down on the floor will get good marks in all their subjects."[12]

The property of (in)violability is essential to distinguish both kinds of constraints. While conventional constraints are violable, natural constraints are not. On earth, objects cannot be suspended in air. This is an "inviolable pattern," no matter if we (implicitly or explicitly) know that it is the case. However, the conventional constraints "governing" greetings can be violated. For whatever reason, I may not greet you back when you greet me.

There is another important property that distinguishes these two kinds of constraints, which follows from the general picture provided by Barwise and Perry. This difference has to do with the (implicit) knowledge organisms have about constraints, that is, with the organism's *attunement*. The existence of natural constraints does not depend on any organisms having any (implicit) knowledge of them, that is, of being attuned to them. The world would go on working according to the constraints even if no

[12] This was one of my dreams when I was at school.

living organism acted according to the constraints; though, most likely, the organisms would perish. Someone could argue that some natural constraints involve the natural workings of organisms: like animals (implicitly) *knowing* that their being in certain place put them in great danger of being hunted. But they are still non-violable genetically transmitted (attunements to) constraints.[13] The existence of conventional constraints, however, depends on people exploiting the constraint.

To sum up, on my take of the situation-theoretic notion of constraints, natural and conventional constraints differ in at least three aspects. (See Table I) On the one hand, natural constraints are not violable; the attunement of a living organism to a natural constraint is mandated by the organism's genes, and thus, is necessarily shared by all typical individuals of the same species and they are attunement-independent. On the other hand, an individual can violate a conventional constraint; its attunement to a conventional constraint is not genetically mandated and if it happens it is established by other means (so, sharing the attunement with its kind is not mandatory) and their existence depends essentially on the attunement of some individual to them.

Natural constraints	**Conventional constraints**
Inviolable	Violable
Attunement established by genetic means	Attunement established by non-genetic means
Attunement independent	Attunement dependent

Table I. Natural vs. conventional constraints

In this work, for obvious reasons, I focus on conventional constraints.

[13] We exploit/rely on those natural constraints that "govern" the behavior of animals, in order to domesticate and hunt them.

2.4. Modes of attunement

As far as I can tell, in Situation Theory, there is no detailed elaboration on the various ways an organism can be attuned to a constraint, but I think it is reasonable to distinguish various modes of being attuned.

As we have seen, attunement is a fundamental relation between living organisms and constraints, a relation fundamental to the explanation of how the organisms cope with the world. We have contrasted attunement with knowledge. One of the main differences can be put like this: while attunement is a "direct" relation between organisms and constraints, knowledge is an indirect relation always mediated by the (explicit) representations of constraints.

Focusing on attunement, I distinguish three different modes of attunement according to the organism's level of awareness, or lack thereof, about its attunement to the constraint. This applies both to natural and conventional constraints, though it has a special implication for the case of conventional and cultural constraints. For the latter, it will be worth looking at the different ways in which attunement to a constraint can be *shared* by a set of people. I'll discuss the last point—sharing attunement—in Chapter 4.

2.4.1. Simple attunement

Simple attunement (or s-attunement, for short) corresponds to the most basic mode of attunement described by Barwise and Perry. Living organisms are attuned to natural constraints without needing any explicit representation of it. It is in their biological architecture, built upon genetic transmission, to be attuned to the constraint. They need not be aware of it. And often they are not. Living organisms with a mass, not living in

oceans or rivers, are attuned to gravity on earth. Most of them are not aware of it most of the time.

Humans, of course, have the capacity of becoming aware of their attunement to some constraints, but they do not need to be aware of them to be attuned. As we have already said, when things work reasonable well, we are not aware of the constraints nor of our attunement to them. If we assume, as Situation Theory does, that a language is a set of conventional constraints, the members of a particular language community are attuned to those constraints. In a monolingual community, native speakers will not usually be aware of the language they speak and they are not normally aware about their attunement to their own language.

I will reserve the term s-attunement for this kind of attunement of an organism to a constraint: the case in which an organism is attuned to a constraint, without being aware of that fact.

2.4.2. Aware attunement

When things go well, we often are not aware of our attunement to constraints. For example, if you "grow up in a particular community, one in which a certain language is spoken, with a certain dialect, and with certain local usages and customs" (Barwise and Perry 1999 [1983]: 99) in your youth, you may not be aware that you speak a certain local variety of a certain dialect of a certain language. Then, one day, a guy from a neighboring region laughs at you because of your "accent;" and you realize that there are different dialects and local usages. You don't know how your dialect exactly is, but you become aware that you are attuned to a certain dialect. I'll call this aware-attunement or aw-attunement, which can be defined thus:

The agent x is aw-attuned to constraint C if and only if x is aware that she is s-attuned to C.

You speak a certain dialect of a certain language, and now you are aware that you speak it. However, if asked the difference between your dialect and the neighboring region dialect, you cannot tell much more than that they are different, and that you speak one and your neighbors speak the other.

2.4.3. Fully conscious attunement

With some attention and study of your own linguistic practices and the contrast with other dialects you could get an explicit representation of your distinctive constraints. You can notice that if you want to denote butterflies you use "tximeleta." That's the constraint to which you are attuned. Your neighbors use different words. The ones in the West use "mitxeleta"; the ones in the North "Pinpilinpauxa". And you make explicit other differences regarding not only the lexicon, but, say, phonological and phonetic features too. In cases like this, I'll talk about fully-conscious-attunement or fc-attunement, which can be understood in the following way:

The agent x is fc-attuned to constraint C if and only if she is aw-attuned to C and she is also aware that C consists in S ⇒ S'.

The difference is now that the agent has an explicit representation of the constraint or constraints; she is aware she's attuned to. In this sense, we can say that she explicitly knows she's attuned to constraint C: S ⇒ S'. This must not be confused, though, with knowledge of the constraint C: S ⇒ S'. In my view, the logical relation between these two statements is the following one:

If the agent x is fc-attuned to C: S ⇒ S', then she knows C: S ⇒ S'.

However, it is not the case that

If the agent x knows C: S ⇒ S', then she is fc-attuned to C: S ⇒ S'.

And the same goes for s-and aw-attunement That is to say, knowledge of a constraint doesn't involve attunement (in any of its modes: s-, aw- or fc-attunement). You may now that your Northern neighbors are attuned to the following constraint

"Pinpilinpauxa" means butterfly,

and thus your knowledge permits you to exploit (by means of a representation) that constraint when talking to them. You can understand their utterances and you can use that knowledge in yours. That doesn't mean that you are automatically attuned to the constraint. In everyday life, talking to people of your town or abroad you will tend to use the word "tximeleta" for butterfly, if that's the constraint you were attuned to from your childhood.

Think about pedestrian street crossing. From the 193 countries currently recognized by the United Nations, 139 use right-hand-traffic (RHT) and 54 use left-hand-traffic (LHT) for vehicles.[14] This implies that when a pedestrian is about to cross a (double-direction) street in a RHT country, vehicles will come from her left, while in a LHT country they will come from her right but the knowledge of this does not lead to the pedestrian to be attuned to it. This is what happened to me the first time I went to London. I knew that I had to look to my right before crossing the street. I knew it because a friend had told me about it, and also because there are warnings painted on the road at many crossings telling you to "LOOK RIGHT". Anyway, being attuned to traffic in a RHT country, I involuntarily put myself in various dangerous situations,

[14] Wikipedia, The Free Encyclopedia, s.v. "Right- and left-hand traffic" (accessed May 20, 2017, https://en.wikipedia.org/wiki/Right-_and_left-hand_traffic

when I systematically looked to my left. Given my attunement, my explicit knowledge was quite useless. It took some time, some dangerous moments, and the angry car horns of local divers to get attuned to the constraint of LHT in the UK.

These various modes of attunement and their difference with explicit knowledge are central to the constraint-based approach to culture that I develop in this work.

2.5. Conclusion

In this chapter I have presented some basic notions from Situation Theory that I consider, not only relevant, but even critical to a naturalistic explanation of culture. We have seen that situations contain and carry information because of the systematic relations that there are between them. Or, in other words, because of the constraints that relate types of situations.

It is then in virtue of agents being attuned to constraints that they can extract information form situations. More precisely "[a]ttunement to these constraints is what *allows an agent to pick up information* from one situation about another" (Barwise and Perry 1999 [1983]: 94).[15] So the information agents pick up (or don't) depends on the constraints agents are (or are not) attuned to.

This shows that information is not a "thing" that passes from one brain to another. Instead, information is better seen as a phenomenon that arises from the attunement of agents to constraints. I have elaborated on the situation-theoretic notion of attunement, and have distinguished three different modes of being attuned, namely, s-attunement, aw-attunement and fc-attunement. These distinctions will permit me, in Chapters 3 and

[15] Emphasis mine.

5, to shed some light on the notions of implicit and explicit knowledge, often invoked but rarely addressed in naturalistic approaches to culture.

3. What is culture about? The Itemic View

The Subject Matter of Culture

> More generally, aren't words, songs, fashions, political ideals, cooking recipes, ethnic prejudices, folktales, and just about everything cultural, items that get copied again and again…?
>
> Sperber 2000: 164

3.1. Introduction

In this chapter, I am going to introduce three main current naturalistic approaches, that is, approaches that provide explanations of culture in causal and material terms without appealing to entities that go beyond human groups, or concepts that characterize human groups and their cultures in supernatural terms.[16] The first approach I consider is called the *epidemiological account* (Sperber 1996; Atran 1990, 2002; Sperber and Claidière 2006). Then I discuss the *memetic account* (Dawkins 2006 [1976], Dennett 1996) and, finally, the *standard evolutionary approach* to culture (Boyd and Richerson 1988 [1985], Mesoudi 2011).

[16] In the late nineteenth-century and first half of the twentieth, culture, and social and psychological phenomena in general, were conceived as conforming or belonging to a different realm from the physical one, not reducible to the realm studied by natural sciences. The approaches considered here are the ones that abandoned that conception.

The three of them agree in considering culture "as that which is transmitted in a human group by non-genetic means" (Sperber 2000: 163). Another way to put it is the following: whatever it is "that" has the *defining properties of the cultural*:[17] *non-genetic transmission, stability and distribution in a group*. The subject matter of culture, whatever it is, is non-genetically transmitted, it happens within a human group, and it is distributed as the outcome of some process of transmission that makes the subject matter stable in time. Which mechanisms are responsible for all this to happen is, of course, a vast topic.

The aim of this chapter is to identify and clarify what "that" refers to in the general definition of culture, as understood by the three main naturalistic approaches to culture. While doing this, I will mention the mechanisms of transmission responsible for the distribution and stability of cultural "stuff," but only as they serve to clarify the subject matter of culture according to those views.

We will see that the three approaches share a common perspective, which I call the "Itemic View of Culture" or "IVC," for short. According to this view, I contend, culture is constituted by certain items that meet certain conditions (most importantly, to be shared in a group through non-genetic means, to somehow endure in time, and have a significant spread within the group). By "item" I refer to the kind of things that these approaches take to be the subject matter of culture that they call "representations," "memes" or, roughly speaking, information-packages that encompass physical or mental, private or public, abstract or concrete entities. What all these items have in common is that they are not constraints. In a nutshell, my point is that for the IVC all

[17] I borrow this notion from Sperber and Claidière 2008. It is not a technical term in the literature, but it captures what is considered to be cultural across naturalistic approaches.

these items, whatever the appropriateness of their role in the explanation, exclude an important part of the cultural subject matter, by ignoring constraints.

3.2. The epidemiological account

The epidemiological account is a "naturalistic program for the social sciences" (Sperber 1996: 3) that seeks to provide a naturalistic explanation of culture.[18] On the one side, it provides the theoretical means for explaining *what* are the items of which culture is made (items such as words, songs, fashions, political ideals, cooking recipes, ethnic prejudices, folktales, rules, skills and so on); and, at the same time, it proposes an explanation of how cultural items get distributed within human populations and why they demonstrate stability in time with a certain degree of variation. In a nutshell, as I take it, the epidemiological account understands culture as a collection of items non-genetically transmitted and distributed in a stable manner in a human population, which are *mental representations* and *public productions*, that propagate forming causal chains called *cultural cognitive causal chains,* which preserve the *information* that characterize or individuates the cultural items.

The epidemiological account is grounded on three things: a) an analogy between culture and epidemic phenomena; b) the claim that social sciences should proceed as epidemiological sciences do; and c) that social sciences have the necessary theoretical grounds to provide a naturalistic explanation of culture, with the resources of cognitive and computational sciences, which can provide the social sciences with grounds for a materialistic explanation of the notion of *representation*.

[18] See Atran 1990, 2002; Bloch and Sperber 2002; Boyer 1994, 2001; Sperber and Hirschfeld 2004, 2006; Sperber 1985, 1996, 2001, 2006, 2011).

3.2.1. The analogy

The first point, the analogy, rests on some similarities between cultural phenomenon with epidemic disease. The idea is that cultural items like words, songs, fashions, political ideals, cooking recipes, ethnic prejudices, folktales, rules, skills, et cetera, spread in human populations as if they were a pathogen that gets passed from individual to individual.

Think about the ideas in our brains as being potentially "contagious" cultural items in the following way.[19] Some of our ideas determine how we behave, as, for example, my ideas about culture that caused me to write this dissertation. The behaviors or the traces left by our behavior are observable by others, e.g. my working fellows seeing me freaking out while I write, or your reading of these lines (these are traces of my behavior). Observing a behavior or its traces can give rise to ideas in the observers, like some of the ideas you are having right now. And sometimes, the ideas caused by an observed behavior or its traces resemble the ideas that caused the observed behavior or traces in question: This will be the case, for instance, if I achieve my goal of you understanding what is in these pages. When this process takes over, some ideas and its traces propagate within a population, e.g. imagine the very improbable (if not unrealistic) case of a version of this work, published in a book, translated into many different languages, and becoming a best seller so that the ideas in it are widely known and people talk about them. For the epidemiological account those propagated ideas and its traces are in a broad sense what culture is.

> Through a material process like the one just evoked, an idea, born in the brain of one individual, may have, in the brains of other individuals, descendants that resemble it. Ideas can be transmitted, and, by being transmitted from one person to another, they

[19] Example borrowed from Sperber 1996:1.

> may even propagate. Some ideas—religious beliefs, cooking recipes, or scientific hypotheses, for instance—propagate so effectively that, in different versions, they may end up durably invading whole populations. Culture is made up, first and foremost, of such contagious ideas. It is made up also of all the productions (writings, artworks, tools, etc.) the presence of which in the shared environment of a human group permits the propagation of ideas. (Sperber 1996: 1)

The point is that this propagation pattern (from one individual to others) shown by culture somehow resembles the spread of diseases, so "[t]o explain culture, then, is to explain why and how some ideas happen to be contagious. This calls for the development of a true epidemiology of representation" (Sperber 1996: 1).

3.2.2. The methodological claim

The second reason for giving an epidemiological account of culture is related to how social sciences should proceed. Epidemiology is a science that seeks to explain how disease turns out to be propagated such that a "whole" population is infected. The way to figure out how this happens requires the collaboration of biology and environmental sciences. The combination of these two disciplines is how scientists understand the disease's life cycle, how it is transmitted between individuals, in which conditions, and so on and so forth. It is by the collaboration of sciences that arrive at a deep understanding of the micro-level phenomena involved in epidemics that the propagation and distribution of the disease as a macro-level phenomenon gets explained, so that we can stop the epidemic.

> How could one go about trying to fit social things into nature, in other words, 'naturalize' them? Here, cognitive science is relevant in more ways than one. A naturalistic programme is one that establishes fundamental continuities between its domain and that of one or several neighbouring natural sciences. Psychological sciences are the social sciences' closest neighbours, and some of their programmes—roughly those falling under the 'cognitive science' label—are in the process of being more or less successfully naturalized. Naturalizing the social domain would

> presumably involve establishing some continuity with programmes in cognitive science. (Sperber 1996: 4-5)

As I take it, the underlying idea is analogous to that of *methodological individualism* for the ontology of social phenomena: social macro-phenomena are the outcome of (and explicable by) individual and interpersonal micro-phenomena. If we then want to explain cultural macro-phenomena such as religion, language, social structure and so on, we need to see how those arise from micro-cultural phenomena such as communication, imitation, learning, cognition and so on, and for that social sciences should seek collaboration with neighboring sciences like psychology, environmental sciences, anthropology, cognitive sciences and so on.

> An epidemiology of representations will attempt to explain cultural macro-phenomena as the cumulative effect of two types of micro-mechanisms: individual mechanisms that bring about the formation and transformation of mental representations, and inter-individual mechanisms that, through alterations of the environment, bring about the transmission of representations. (Sperber 1996: 50)

> All epidemiological models, whatever their differences, have in common the fact that they explain population-scale macro-phenomena, such as epidemics, as the cumulative effect of micro-processes that bring about individual events, such as catching a disease. In this, epidemiological models contrast starkly with 'holistic' explanations, in which macro-phenomena are explained in terms of other macro-phenomena—for instance, religion in terms of economic structure (or conversely). (Sperber 1996: 2)

The point is that an epidemiological approach to culture is conceived as the collaboration between anthropology with neighboring sciences so that we can explain how it is that "[t]he human mind is susceptible to cultural representations in the same way as the human organism is susceptible to diseases" (Sperber 1996: 57), such that it causes cultural items to show an epidemic-like distribution pattern.

3.2.3. The grounds for naturalizing culture

The third point is that the development of computational sciences during the 20th century has shown how information can be implemented in material processes:

> [T]he development of computers, and important advances in neurology for the impact of Turing's discovery on psychology to be felt, and for a truly materialist approach to cognition to begin emerging. (Sperber 1996: 13)

Thus, the social sciences could develop a better understanding of how information is implemented in our brains. The epidemiological account anchors representations to the natural world by providing an explanation of representations and chains of representation which will account for macro-level phenomena. So with the help of computational sciences, Sperber's goal is to provide a materialistic account of cultural representations which aims to be "precise enough to help bridge the gap between the cognitive and the social sciences" (Sperber 2006: 432-433).

For at least some formulations of the epidemiological account, culture is just the collection of all instances of cultural items in people's brains and their environment. Yet for other formulations, cultural items seem to be information or contents (either communicative or imitative), leaving aside somehow the fact that mental representations and public productions are necessary for cultural items to exist. Since this is the case, let's go through these two formulations.

3.2.4. Culture as distributed representations and public productions

A difficulty in explaining culture, is that cultural items such as stories have many versions and many more tokens (tales, writings, audio records, memories….). We can describe some of these tokens as the media in which the story is stored (either in

people's brains or on external devices: books, tapes, CDs, mp3 files…), but also as the media for transmitting the cultural item.

The epidemiological account describes those tokens as representations and public productions. Memories, beliefs, intentions, items of knowledge are considered *mental representations*. Story-tellings, audio recordings, gestures, artifacts, rituals (in sum, behaviors or their traces in the world) are described as public productions, of which *public representations* are a special kind.

The fact that cultural items can be of such variety, makes it hard to answer or discern what actually is (ontologically speaking) a story like *Little Red Riding Hood*, and this is also the case for many, perhaps most, cultural items.

In this subsection, I argue that it is reasonable to think that the epidemiological account takes culture essentially as a collection of items. Think of it in the following way. If there were no books, memories, tales and so on there would be no cultural item such as *Little Red Riding Hood*. Besides, if I invent a story, but I don't tell anybody about it, it is not cultural because nobody else knows the story. There would be no transmission so it would not become a cultural item.

For Sperber, what makes a song, a fashion, political ideals, cooking recipes, ethnic prejudices, folktales, et cetera, cultural is their being widely distributed in a population of mental representations and public productions.

> [W]hat caused the Mornay sauce recipe or the story of 'Little Red Riding Hood' to become cultural representations is not—or rather, is not directly—their formal properties; it is the construction of millions of mental representations causally linked by millions of public representations. (Sperber 1996: 63)

This means that what makes an item cultural (in this case a recipe or a story) is the fact of there being a large enough number of representations and public productions of it,

widely distributed.[20] On the other hand, its representations and public productions have to remain stable throughout the process of distribution. That is, what makes *Little Red Riding Hood*, the belief in any kind of god, a tool, a rule, or any item that comes to your mind a cultural one, is that they are widely distributed within a human population.

> When we speak of cultural representations, we have in mind—or should have in mind—such widely distributed, lasting representations. Cultural representations so understood are a fuzzy subset of the set of mental and public representations inhabiting a given social group. (Sperber 1996: 33)[21]

It is worth noting that, it is not just the fact that there are "millions" of instances of a given mental representation or a public production that makes a cultural item cultural. It is the "impact" a cultural item has in people's minds that seems to be relevant for Sperber:

> The cultural importance of a public production is to be measured not by the number of copies in the environment but by their impact on people's minds (Sperber 1996: 104)

This passage refers to a comparison of the impact on people's lives and minds of spam mail (letter chains)—of which there can be millions of instances of the same item—, on the one hand, and scientific ideas, on the other, of which there might be just a few instances in people's brains and public productions (such as articles), but whose impact can be observed across the whole population.

Thus, the epidemiological account explains culture in terms of mental representations and public productions distributed across a population. The notion of

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[20] Generally speaking, as we will see, when Sperber talks about culture as information, how widely distributed the information is seems to play a role in its designation as cultural. Nevertheless, there is no clear ratio of population to candidates for cultural items, which distinguishes cultural distribution from mere local distribution.

[21] He is referring by cultural representations to mental and public representations, but more generally to cultural items, of which of some public productions that are not representations play an essential part.

representation is based on the everyday notion of representation: an object or event (physical or mental) that stands for another object or event for someone (Sperber 1985: 11). Think about an image (a picture, a painting) or a description (written or spoken) of a particular computer, a map of a geographic area, my perception of a particular computer, the tale of *Little Red Riding Hood* I know from my grandma, or her belief in God, and so on and so forth.

This account distinguishes two kinds of representation: *mental* and *public*. Mental representations such as ideas, beliefs, memories, perceptions and the like:

> [M]ental representations are brain states described in functional terms, and it is the material interaction between brains, organisms and environment which explains the distribution of these representations. (Sperber 1996:28)

Examples of public representations are "speech, gestures, writing, and pictures" which "are a special type of public productions whose function is to communicate a content" (Sperber 1996: 32; Sperber and Hirschfeld 2006:149). By "public production," in turn, Sperber means

> (…) any perceptible modification of the environment brought about by human behaviour. Productions include bodily movements and the outcomes of such movements. Some productions are long-lasting, like clothes or buildings; others are ephemeral, like a grin or the sounds of speech. (Sperber 1996: 99)

But how is the process of "culturization" of an item like? Sperber describes how an item (a song, fashion, political ideals, cooking recipes, ethnic prejudices, folktales, et cetera) gets distributed by chains of representations and public productions. The

epidemiological account distinguishes between various kinds of chains of representations for explaining culture: *cognitive, social and cultural*.[22]

A cognitive chain is a process that happens within an individual's mind/brain. Let's take the example of the tale of *Little Red Riding Hood*. My grandma has many mental representations, and among them, are the funny memories of her mother telling the tale of *Little Red Riding Hood*. This mental representation gets involved in her thinking, which leads her to the belief that I could enjoy the tale as she did. And this belief causes in her the desire to tell me the tale she remembers.[23] This is a *cognitive* chain. According to Sperber (2001, 2006, 2011), cognitive chains are causal interactions between perceptions, inference processes, memories and beliefs, that is, causal chains of mental representations within an individual:

> Typically, public productions have mental representations among their causes and among their effects. Mental representations caused by public productions can in turn cause further public productions, that can cause further mental representations, and so forth. There are thus complex causal chains where mental representations and public productions alternate. Public productions are likely to have many mental representations among their causes, and, conversely, every link in a causal chain may be attached to many others, both up and down the causal path. (Sperber 1996: 99)

The cognitive chain in my grandma's mind/brain might end up causing my grandma to actually tell me the tale of *Little Red Riding Hood*. If she does so, and produces a public representation which affects me, she creates a social (cognitive causal) chain. Her telling of *Little Red Riding Hood* causes a mental representation of the tale in my mind. If things go right, the mental representation of the tale created in my mind would be

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[22] Sperber's (2001, 2006, 2011) terminology is a bit more complicated. He calls these kinds of chain, respectively, "cognitive causal chain," "social cognitive causal chain" and "cultural cognitive causal chain." Probably "net" or "network" are better terms than "chain" for the latter suggests a one-to-one relation, while the former allow branching.

[23] I do not believe that reality works exactly this way. I am just following a similar example to the one Sperber provides (Sperber 1996: 61-62).

accurate enough to (resemble minimally) the one in my grandma's mind, that is, my mental representation of the tale contains the "same" information that my grandma's mental representation has. This way, the representation of *Little Red Riding Hood* has been transmitted from my grandma to me. Thus, a *social* chain starts with a cognitive chain within an individual's mind that by means of a public representation triggers a cognitive chain in another individual:

> Of particular interest are causal chains from mental representations to public productions to mental representations and so on, where the causal descendants of a representation resemble it in content. The smallest ordinary such causal chain is an act of successful communication. Typically, the public productions that are involved in communication are public representations such as linguistic utterances. Public representations are artefacts the function of which is to ensure a similarity of content between one of their mental causes in the communicator and one of their mental effects in the audience. (Sperber 1996: 99)

Finally, a *cultural* chain occurs when the social chain involving the same represented item (in this case, the tale) gets repeated. That is to say, when I tell my niece the tale I remember, and then she tells it to her siblings and so on, a cultural chain has begun. When this process goes over and over, we have a cultural chain in which the information that constitutes the tale gets passed repeatedly, and minimally transformed, along the chain. Communication, of course, plays an important role in the generation of cultural chains:

> A typical example of a SCCC [social cognitive causal chain] that preserves the content of mental representations is provided by communication. Communication between two people involves two complementary cognitive processes, one of expression and one of interpretation. The communicator expresses a mental representation by producing some public representation. This representation is then interpreted by the receiver, yielding, if all goes well, a mental representation similar enough to the one that had been expressed by the communicator. (Sperber and Claidière 2006b: 437)

Thus, to sum up, according to the epidemiological account as I take it, a culture is a collection or set of cultural chains. The common informational content of the mental and public representations involved in a cultural chain constitutes the subject matter of culture. In other words, a mental representation *q* that has a content φ causes a public representation *p* which has the content φ‘, and a receiver of *p* transforms this public representation into a mental one *y* which has the content φ‘’, and φ, φ‘ and φ‘’ have a minimal resemblance in content. Only when this process takes place a significant number of times can the informational content be spread widely in a human group, and only then will the content be considered a cultural item: “only those representations which are repeatedly communicated and minimally transformed in the process will end up belonging to the culture” (Sperber 1996: 83). Quoting Sperber at length, this is the overall picture of the epidemiological approach to culture:

> A human population is inhabited by a much wider population of mental representations of all kinds: beliefs, values, techniques, projects, intentions and so on. These mental representations are distributed in the brains of individuals. Behaviours are caused by mental representations, the behaviour of an individual, for instance walking or speaking, may be perceptible to other individuals, or it may leave perceptible traces, for instance footsteps or writing, I call such perceptible behaviours and traces “public productions.” The public productions of an individual may provide an input to the mental processes of other individuals causing them to construct their own mental representations. These representations can in turn result in public productions which can trigger the construction of yet other mental representations in other individuals and so on. A human group is thus crisscrossed by a mesh of causal chains where mental and environmental links alternate. Everything social, I would argue, is caught in that mesh. (Sperber 2017 [1997])[24]

At this point a clarification is needed. Consider that there are as many mental representations of *Little Red Riding Hood* as people that know the tale and also that there are many public representation: books, audio records, films and cartoons of the

[24] Being a web version, it has no page numbers.

tale. Think that all those representations conform to the range of different versions of *Little Red Riding Hood*. In some of them the main character brings wine, in others honey; in some the grandma and *Little Red Riding Hood* are saved by a hunter or a woodcutter, but in others they are not saved; not taking into account the differences in how people tell the tale. We can say then that there are different cultural chains of the tale. What then is the tale *Little Red Riding Hood*? According to the epidemiological account, the tale *Little Red Riding Hood* is the information that all representations of the tale have in common, and it is by means of this information that we recognize in them (the representations) the tale *Little Red Ridding Hood*. "[I]t is by their content rather than by their material properties that we tend to identify representations" (Sperber 2001: 303).

This could lead to a misunderstanding because the representations and the information they contain are two different things: What is culture then? The representations, that is, the objects and events that contain information or the information common to all of them?

The epidemiological account answers this by considering the tale of *Little Red Riding* Hood as an abstract representation that is the common information to every representation of the tale. It is in this sense that we should understand what Sperber means when he says that a tale is a representation despite all the differences that may take place in the instantiations of it.

Summing up, the main idea for the epidemiological approach is that cultures are the collections of items shared in a social group: ideas, beliefs, tales, customs, artifacts... This account conceives a cultural item in terms of representations and the information contained in them. Thus, a cultural item is a chain of mental and public representations.

Those chains are called "cultural cognitive causal chains" and those are the ones that preserve the information that characterize cultural items. The explanation of cultural items is not exhausted by actual public or mental representations, they are best understood by abstracting the common information to the representations that constitute the cultural item. That is, it turns out that for the epidemiological account culture is a collection of items identified as representations by information contained in them.

I want to point to three related aspects that mark the differences between this account and the constraint-based approach I defend. First, it is quite clear that the epidemiological approach is an IV or Itemic View, because it takes the subject matter of culture as being constituted by (mental or public) representations and chains of them. Thus, second, the role of constraints in the production of behavior, and in the account of the very notion of information (central to the epidemiological approach) goes unnoticed. And, third, the distribution of the cultural subject matter in a human population is exclusively through transmission (communication, imitation, copying…), ignoring what is, to my mind, the fundamental means of cultural distribution, the simple attunement to a conventional constraint. I'll elaborate this in the next chapter. Now, I want to consider the second main naturalistic approach to culture: *memetics*.

3.3. The memetic account

The memetic account of culture is a naturalistic approach that is based on a strong analogy with biological evolutionary theories. In a nutshell, for the memetic account, culture is a collection of *memes* (entities that get replicated in the process of transmission mostly by imitation), which are information in brains and objects. In other

words, what is commonly understood by culture (songs, ideas, beliefs, tales, customs...) are, for this view, memes.

This account arises from a biological evolutionary theoretical framework adapted to an account of culture. As Dennett (1996: 343) argued following Dawkins 2006 [1976], to be considered evolutionary, a process must fulfill the following conditions:

- Variation or fecundity: there is a continuing abundance of different elements.
- Heredity or replication: the elements have the capacity to create copies or replicas of themselves.
- Differential "fitness": the number of copies of an element that is created in a given time varies depending on interactions between the features of that element and features of the environment in which it persists.

Back in the 60's, there was a debate about the subject matter of biological evolution, species or genes. The above characterization of evolution explains the mechanism of evolutionary processes. On this view, "elements" become central to the explanation of any evolutionary process, and whatever they are, they have to meet such conditions. As I understand it, the debate was settled by distinguishing between *which* are and *what* are those elements of biological evolution. To the question of which the elements of biological evolution are, the answer was genes. But to the question of what these elements are, Dawkins proposed the notion of *replicator* (Dawkins 2006 [1976]).

The notion of replicator was meant to explain any evolutionary process. It is based on in a generalization of the features observed in genes, that is, replicators are the entities (the elements) with the capacity to create copies or replicas of themselves given the proper conditions. Thus, if there is something with the capacity of replicating with

variation in an environment with finite resources, an evolutionary process should take place.

The view that the presence of a replicator is central to any evolutionary process, opened the possibility of thinking about genes as just one kind of replicator among other possible ones (Dawkins 2006 [1976]: 194), which led to the idea of other possible evolutionary processes. This conception of evolution raised the question of whether there could be more evolutionary processes operating on our planet apart from the biological one that we are familiar with.

> But do we have to go to distant worlds to find other kinds of replicator and other, consequent, kinds of evolution? I think that a new kind of replicator has recently emerged on this very planet. It is staring us in the face (Dawkins 2006 [1976]: 192).

This was the starting point for the memetic account: culture is constituted by a "new" kind of replicator. The underlying assumption of a memetic account is the following: given that cultural items (some songs, tunes, stories, ideas, skills and so on) pass from generation to generation of humans by what seems like a copying process with little variation, these are non-genetically *inheritable*. They also show the feature of *variation,* and *differential fitness*. In conclusion, cultural items are subject to selection processes (like natural selection) by the environment, and culture is an evolutionary process.[25]

> From the memetic point of view the human being (with its clever thinking brain) acts both as the replicating machinery, and as the selective environment for the memes. (Blackmore 1999: 15)

[25] There is an interesting debate about evolutionary theory and evolution kinds surrounding culture: Claidière et. al 2014, Henrich et. al 2008 claim that there can be evolution process without the need of a replicator-like entity.

So, if any evolutionary process must have a replicator and if culture is an evolutionary process, then, there must be a replicator in culture: "we need a name for the new replicator, a noun that conveys the idea of a unit of cultural transmission or a unit of *imitation*," and this is *meme* (Dawkins 2006 [1976]: 192). The memetic approach takes cultural items as memes; memes are the subject matter of culture.

There has been a lot of discussion about their very existence and their appropriateness as theoretical concepts to explain culture.[26] But what are they?

3.3.1. Extensional definition of meme

Generally speaking, a common way to define culture is by extension, "on the basis of observed behaviors and artifacts" (Lyman and O'Brien 2003). The memetic approach explains what memes are by identifying them with cultural items. That is, by the extension of the word "culture."

Dawkins refers to "tunes, ideas, catch-phrases, clothes fashions, ways of making pots or of building arches" (Dawkins 2006 [1976]: 192) as clear examples of memes. Here Dawkins picks up things that tend to be copied. He mentions that it is the fact of their "psychological appeal" that makes us copy (or replicate) them. We can think of them as viruses too. That would be similar to the epidemiological notion, but even closer to software viruses (Dawkins 1993; Lynch 1996; Brodie 2004 [1996]) spreading in the minds of individuals of a population. This is what nowadays is meant when some news, a video, a gif and the like goes viral. These are memes too.

For Dennett the underlying notion is very similar, but he takes the concept of memes to apply basically to ideas.

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[26] See Aunger 2000.

> [T]hese new replicators are, roughly, ideas. Not the 'simple ideas' of Locke and Hume (the idea of red, or the idea of round or hot or cold), but the sort of complex ideas that form themselves into *distinct memorable units*— such as the ideas of: arch, wheel, wearing clothes, vendetta, right triangle, impressionism … (Dennett 1991: 201, 1996: 344)

The line of thought again is the following one: since everything cultural is transmitted (whatever the mechanism) from individual to individual, and thus to populations, the very fact that it is transmitted implies that they are copied somehow. Given this view, cultural things fit in the notion of memes. The notion of memes is, in this sense, a generic notion that captures what is commonly considered culture. The lists above make clear that for the memetic approach cultural items are memes, and therefore, culture is constituted by memes.

Although the things they refer to as memes are mostly mental objects, we will see in the next subsection that, for the memetic account, memes are not just ideas, or things in people's brains/minds. For the moment, one might think that ideas, thoughts and beliefs in general are memes, but

> we should remember that not all thoughts are memes. In principle, our immediate perceptions and emotions are not memes because they are ours alone, and we may never pass them on. (Blackmore 1999: 15)

So, what does make them memes or culture? All the things mentioned above share a feature according to the memetic account: they are things that are mostly transmitted by imitation.

3.3.2. Memes as what is imitated

A way to characterize what memes are, then, is by looking at their transmission. Despite some mention of verbal communication (Dawkins 2006 [1976]:193; Blackmore 1999: 34), according to the memetic account, memes propagate themselves in the meme pool

by leaping from brain to brain via a process which, in a broad sense, can be called "imitation" (Dawkins 2006 [1976]: 192).

When one person imitates another, a meme is transmitted from one brain to another: a meme has been replicated. Imagine that I hum a tune that I have in my mind and when another person imitates me because of the characteristics the meme has (because they like it, it reminds them of something, or for its simplicity) and this person gets the tune, memeticists would say that the tune (a meme) has been transmitted (Blackmore 1999: 1-9).

A further step from this is to fully identify memes with whatever is imitated. The idea would be that if a person imitates another and succeeds, a meme has been transmitted from one person to another.[27] In Blackmore's words:

> Everything that is passed from person to person in this way [imitation] is a meme. This includes all the words in your vocabulary, the stories you know, the skills and habits you have picked up from others and games you like to play. It includes the songs you sing and the rules you obey. (Blackmore 1999: 7)

She identifies "everything" that gets passed from person to person by imitation as memes, and that "all" cultural items one knows or uses are things that one knows and uses because they have been "passed" (transmitted) by imitation.[28]

[27] An integral idea to this is that we (our brains, among other supports like books, computers and movies) are the vehicles for memes as we (our bodies) are the vehicles of our genes (Dawkins 1982).

[28] Notice that the issue of degree of distribution for an idea to be a meme vanishes with this way of looking at culture. If something is imitated just once, it is a meme and, therefore, cultural: its degree of success at being distributed seems to be what characterizes it as an evolutionarily "good" or "bad" meme, but not as cultural or a cultural thing.

3.3.3. Memes as information

When it is said that something is copied, there are two different senses of "copying." One makes a copy when one makes a new object that resembles another object, or performs an action that resembles another action. Take, for instance, a ceramic pot I made by looking at a model pot, or my first ever greeting of someone in Japan, by copying the movements (bowing) of my friend Noritaka. In this sense, copying would amount to imitation.

A different way of copying is when someone produces an object or causes an event that contains information about an event. Think of my utterance "the coffee is hot" while pointing to a cup filled with hot coffee. Kepa translates what I said uttering "kafea beroa dago" to a friend that does not understand English. Kepa didn't imitate my utterance, but producing an utterance with the same content, he somehow produced a copy of it, without "re-producing" it. The same thing would happen with habits:

> Let me pause to ask the question: what is such a habit made of? What gets passed from individual to individual when a habit is copied? Not stuff, not packets of material, but pure information, the information that generates the pattern of behavior that replicates. A cultural virus, unlike a biological virus, is not tethered to any particular physical medium of transmission. (Dennett 1999: 317-318)

That is, in part, an aspect of the memetic account's strong analogy with biological evolution. In biology, broadly speaking, what is transmitted from one generation to another are genes and scientists talk about them as information.[29]

The memetic approach assumes that "we know that memes are just information being copied from one person to another" (Blackmore 1999: 204). This, along with the view of Dennett that "what is preserved and transmitted in cultural evolution is

[29]About the use of the metaphor "genetic code," "genetic information"... see (Knudsen 2005).

information" (1996: 353), leaves no doubt about their claim: culture is a collection of items (memes) that are the information that humans transmit by imitation.

> A meme should be regarded as a unit of information residing in a brain (Cloak's 'i-culture'). It has a definite structure, realized in whatever physical medium the brain uses for storing information. If the brain stores information as a pattern of synaptic connections, a meme should in principle be visible under a microscope as a definite pattern of synaptic structure. (Dawkins 1982: 109)

Nevertheless, despite that a meme is not bound to "any particular medium of transmission," according to Dennett, the very existence of memes relies on being instantiated in a physical medium:

> Memes are also invisible, and are carried by meme vehicles—pictures, books, sayings (in particular languages, oral or written, on paper or magnetically encoded, etc.). Tools and buildings and other inventions are also meme vehicles. A wagon with spoked wheels carries not only grain or freight from place to place; it carries the brilliant idea of a wagon with spoked wheels from mind to mind. A meme's existence depends on a physical embodiment in some medium; if all such physical embodiments are destroyed, that meme is extinguished. (Dennett 1991: 204)

Up to now, memes have been defined as the units of cultural transmission or imitation in cultural evolution. So, memes are the replicators of cultural evolution analogous to genes, that is to say, memes are chunks of information "stored" in our brains and the objects in our environment, which replicate. Memes are replicated by imitation, and by this way the information that constitutes memes gets transmitted from brain to brain or other object in which they are instantiated.

3.3.4. Memes as instructions

At this point, another remark needs to be made. The idea of memes being analogous to genes may suggest that memes are copied with the same high-fidelity rate as genes; that cultural evolution may be, at least in theory, a high-fidelity copying process.

This issue caused some debate. Some positions arose against memetics as a possible explanation of culture and of how the process of cultural transmission works (Sperber 1996, 2000; Kuper 2000; Bloch 2000). For these authors, it is inconceivable that culture is based on a-high fidelity process run by a self-replicating entity, since, among other reasons, "[i]n the process of transmission, representations are transformed" (Sperber 1996: 53).

Naturalistic approaches agree that culture shows stability, so, there must be some mechanism in the process of transmission responsible for that. For non-memetic accounts, this stability is not due to the self-replicating characteristic of memes. In fact, they claim that cultural transmission has a "low" fidelity rate. That is to say, in every step of the transmission the information gets transformed to some degree. Roughly speaking, they locate the causes of the stability of cultural information not in the information itself but in the cognitive biases and capabilities of the human mind (Sperber and Hirschfeld 2004, 2006).

The debate led to a final version of memetics which refines the notion of meme in terms of information by getting closer to the analogy with genetic information. Inspired by the distinction of F. T. Cloak (1975) between "i-culture" and "m-culture," Dawkins distinguishes between the meme (the information, e.g. the idea of chair) and its phenotypic expressions (e.g. an actual chair). This is analogous to the genotype and the phenotype distinction in biology, which is the difference between the genes of an organism and the expression of those genes in the organism (Dawkins 1982: 109).

From this perspective memes are information consisting in instructions for producing a mind-external object, e.g. a behavior or an artifact, just as the information of genes which is described as the instructions to make an organism. The memetic

account of culture, then, makes a distinction between *information* and *what* information produces, e.g. between my idea of a chair and the chair (the product of following the idea). This is how memes are defined as instructions (thought as a *kind of* information, that of which the meme is "made of") and what is produced by following the instructions (the objects that contain them, ranging from tools to words).

By this distinction, the memetic account tries to solve the problems of high-fidelity and explains how memes can be in people's minds and in artifacts. Dawkins gives an example to illustrate the point (Dawkins 1999). His father shows him how to make a Chinese junk of paper. He watches him and imitates what his father does, and in the end, he gets a Chinese junk. Afterwards, he showed it to a friend at school. Later, all the children were making Chinese junks.

The point is that if one observes all the junks, one will notice that they are different, due to, say, the differences in the ability of the individuals and the loss of steps in the transmission of how they are built. Dawkins' conclusion is that we do not copy the junk (the phenotype), what we copy are the instructions (the genotype) we follow to do the junk. So, as cited before, memes are information that are instructions and the junks are the instances of these instructions.

By understanding memes as instructions, the memetic account can explain why people, having the same meme (instructions) in their brains, may yet express that meme differently. This could be theoretically a reasonable explanation, given that the differences between tokens of the same cultural item vanish, since the actual cultural item is the meme, which remains "intact." This is not a definitive solution, since memetics acknowledges that we can copy memes from their phenotypic expressions,

which will mean that somehow they include the instructions, so they are somehow a meme too.[30]

> [W]ords are memes that can be pronounced. Other memes are the same sort of thing—information packets or recipes for doing something other than pronouncing—behaviors such as shaking hands or making a particular rude gesture, or taking off your shoes when you enter a house, or driving on the right, or making your boats symmetrical. (Dennett 2007: 81)

3.3.5. Memeplex

This is an extension that the memetic account makes, following the analogy with genetic evolution.

Some memes survive and evolve so that they co-adapt forming "meme-complexes" (Dawkins 2006 [1976]: 192) or "memeplexes": "The essence of any memeplex is that the memes inside it can replicate better as part of the group [the memeplex] than they can on their own" (Blackmore 1999: 20).

As it has happens with genes, the chances for a meme to survive may increase with other memes, or the replication of a meme might help other memes replicate. The classic example for this in memetics is religion. A more simple example would be something like the parental advice to kids: "Good children keep their clothes clean," "Nice people say please and thanks." These are some of the examples given by Susan Blackmore (1999: 169). She describes these utterances as instances of collaboration between two memes: the ideas of "good" and "nice" with some behavioral instructions. According to her, these two appear frequently together because one supports the other.

[30] As far as I can tell, the memetic approach offers no clear explanation of where a meme begins and ends. For example, when they talk about songs or tunes they do not clarify if there is one or several memes or if the tune is a meme complex, that is, a memeplex.

A more complex example would be the one of religion. Religion would be a cluster of the memes of: "God," "faith," "life after death," "hell" et cetera. Having faith implies belief in God, not believing in God implies going to hell, all those supported by the idea that life continues after death. Those memes are not isolated but at the same time are not in the same clusters (religions).

3.3.6. Culture as self-replicating memes

Concerning the subject matter of culture, it is clear that, for the memetic account, culture consists of a collection of memes that are transmitted by "imitation." Memes are representations and replicators: they use our brains to make copies of themselves, as genes use cell machinery to make copies. Memes are then a 100% successful transmission of representations and should be treated "in cultural transmission not as the norm but as a limiting case (of 100 per cent influence)" (Sperber 1996: 106). The cultural items that constitute culture are then memes, which are information stored in brains and in non-mental objects such us artifacts and behaviors, and transmitted by copying. They are instructions for making copies of themselves. Those are the items that constitute culture for this account: memes.

3.4. The standard evolutionary account

The standard evolutionary approach to culture is the third and last attempt to naturalize culture that I consider.[31] In this case, the idea is to do it in a quantitative way. The

[31]I take the name for this approach from Acerbi and Mesoudi 2015. They distinguish between two views: the standard cultural evolution approach and the Sperberian cultural attraction approach. From my point of view, the epidemiological account and the standard evolutionary account (with the exception of Mesoudi et al. 2004) consider culture to be transmitted in non-discrete units as the memetic approach proposes. On the other hand, the epidemiological

approach is based in an analogy between culture and biological evolution, and seeks to explain culture by applying the mathematical models from population genetics to culture, or more precisely, to what I have been calling "cultural items."

As I take it, the authors in this approach have as a starting point the idea that the social sciences are at a stage very similar to the beginnings of the theories in biological evolution, being "based on informal and nonquantitative methods" (Mesoudi 2011: xi). In biological evolution, what nowadays is known as "the evolutionary synthesis" took place thanks to models developed in the 1920's by British and American mathematically inclined biologists, who created models that "allowed these informal intuitions [whether biological evolution was Lamarckian or Darwinian] to be tested far more precisely than is possible with informal, verbal arguments and thought experiments" (Mesoudi 2011: 48-51).

In the 80's Cavalli-Sforza and Feldman 1981 applied the mathematical models that described the genetic distribution of human populations to culture. This way, they created the models for explaining the distribution of culture. These models described three micro-evolutionary processes of transmission: vertical (parents to children), oblique (from unrelated elders), and horizontal (within generations), from one to one or from one to many and so on.[32]

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account argues that the process of cultural evolution is not based on selection (but in preservative and reconstructive processes) while the standard evolutionary approach proposes a model that captures the epidemiological explanation plus selection. See Henrich and Boyd 2002; Sperber and Claidière 2008, 2014; Henrich et al. 2008.

[32]Furthermore, they ran some experiments in which they wanted to see if the predicted distribution of cultural items was close to that of the data collected. Cavalli-Sforza et al. 1982, surveyed Stanford students and parents and friends asking about their religious and political beliefs, sports and entertainment preferences, and daily habits, to test their models against actual data.

Just after Cavalli-Sforza and Feldman, Boyd and Richerson (1988 [1985], 2005) developed the approach further. They refined and expanded their models, describing, among other things, the idea of how "cultural selection" works:[33]

> any condition where one cultural trait is more likely to be acquired and passed on than an alternative cultural trait (or no trait at all). Unlike guided variation, cultural selection does not involve any modification of the trait itself, only changes in the frequency of that trait. (Mesoudi 2011: 65)

Broadly speaking, there are three classes of cultural selection, which are defined as biases in the transmission of culture: content, model-based and frequency-dependent biases. Content bias consists in the selection of cultural traits by their intrinsic advantages and disadvantages or inherent psychological attraction:

> Individuals are more likely to learn or remember some cultural variants based on their content. Content-based bias can result from calculation of costs and benefits associated with alternative variants, or because the structure of cognition makes some variants easier to learn or remember. (Boyd and Richerson 2005: 69)

Frequency-based bias consists in the selection of cultural traits by their frequency presence. They relate the degree of adoption of a cultural item, to the frequency of that item in the population. There are two possibilities: adoption, because of high frequency, called "conformity," or, because of scarcity, called "anti-conformity."

> The use of the commonness or rarity of a cultural variant as a basis for choice. For example, the most advantageous variant is often likely to be the commonest. If so, a conformity bias is an easy way to acquire the correct variant. (Boyd and Richerson 2005; 69)

[33]This is not the only mechanism or "force" that operates in cultural evolution that they observed. They defined models for explaining cultural mutation, guide variation, cultural drift and so on (Boyd and Richerson 1988 [1985], 2006), which all operate on the same assumption that I'm trying to illustrate in this chapter: that for naturalistic approaches culture is a collection of items.

Model-based bias describes the cases in which there is a relation between a cultural trait and a person. It concerns the identity of the person, the model, from whom cultural traits are acquired:

> Model-based bias. Choice of trait based on the observable attributes of the individuals who exhibit the trait. Plausible model-based biases include a predisposition to imitate successful or prestigious individuals, and a predisposition to imitate individuals similar to oneself. (Boyd and Richerson 2005: 69)

A model-based bias is the prestige bias:

> Prestige-biased group transmission. Because of our cultural learning abilities, individuals will be inclined to preferentially attend to and learn from individuals in more successful groups, including those with social norms that lead to greater economic success or better health. This causes social norms, including ideas, beliefs, practices (e.g., rituals), and motivations, to flow via cultural transmission from more successful groups to less successful groups. [endnote 8: See Boyd and Richerson 2002 and Henrich 2004] Since individuals cannot easily distinguish what makes a group more successful, there is a substantial amount of cultural flow that has nothing to do with success (e.g., hairstyles and music preferences). (Henrich 2015: 168)

As it can be seen, the standard evolutionary approach has developed various conceptual tools and models for testing many "informal intuitions" of the social sciences.[34] As I take it, the point for the standard evolutionary approach is to find the models that can explain why cultural items are distributed the way they are, but not to answer specifically what culture is,

> We don't think arguing about whether our definition or some other is the "correct" definition of culture is worth much effort. Complex natural phenomena such as culture are exceedingly difficult to capture with simple definitions, and quarrelling over which of the many sensible definitions is best does not seem to us a useful exercise. Rather, the question should be, does it generate useful theory? (Boyd and Richerson 2005: 259, n. 4)

[34]See the list about "a wide range of methodologies [that] are used in the field of cultural evolution" in Acerbi and Mesoudi 2105: 482.

Despite that "pragmatic" stance, they do have a working definition:

> Culture is information capable of affecting individuals' behavior that they acquire from other members of their species through teaching, imitation, and other forms of social transmission. (Boyd and Richerson 2005: 5)

As it can be seen, the notion of information is central for the standard evolutionary approach too, and it does not differ much from the one to be found in the two naturalistic approaches I have presented. Cultural items are roughly identified with information:

> By information we mean any kind of mental state, conscious or not, that is acquired or modified by social learning and affects behavior. We will use everyday words like idea, knowledge, belief, value, skill, and attitude to describe this information. (Boyd and Richerson 2005: 5)

> "Information" here is intended as a broad term to refer to what social scientists and lay people might call knowledge, beliefs, attitudes, norms, preferences, and skills, all of which may be acquired from other individuals via social transmission and consequently shared across social groups. (Mesoudi 2011: 3)

This is a mental notion of information very similar to the one in epidemiological and memetic accounts,[35] which takes almost anything that happens in the brain to be information. This implies that culture is in people's brains:

> Culture is (mostly) information stored in human brains, and gets transmitted from brain to brain by way of a variety of social learning processes. (Boyd and Richerson 2005: 61)

But, they also consider that artifacts store information. Then, with the invention of writing and electronic devices, much cultural information has been stored in artifacts external to minds:

[35]Although "representation" is not the notion they commonly use to talk about culture, by information in the brain they mean mental representations in the epidemiological sense. See Henrich and Boyd 2002, and Henrich et. al 2008.

> Today an important fraction of culture is stored in written (and electronic, film, etc.) form (Donald 1991), and some has probably always been carried in the form of artifacts of various kinds. This fact has no doubt substantially affected cultural evolution during the last few thousand years. (Boyd and Richerson 2005: 259, n. 5)

The idea of information stored in brains, in contrast with information stored in artifacts, is somehow intuitive. Think about an arrow found by an archeologist. In this case, the information contained in an arrow refers to the knowledge that the individuals who produced it used in order to make and use it. So, the arrow itself is cultural, but what is cultural in it is the information for producing and using it: "a "recipe"—a unit of cultural transmission that combines raw materials and the various behaviors that constitute a person's knowledge regarding how a tool is made and used" (Mesoudi and O'Brien 2008: 64).

In addition to not providing a technical notion of information, the standard evolutionary account doesn't have a clear understanding of how information is stored. Proponents of this account know it must be stored—brains and artifacts—but not how. As Boyd and Richerson emphasize and acknowledge:

> (…) [W]e need some expedient agreement about what to call the information stored in people's brains. This problem is not trivial, because psychologists have deep disagreements about the nature of cognition and social learning. Adopting a terminology may mean taking sides in these controversies, something that is neither necessary nor desirable. But, we can't go on saying "information stored in people's heads"—it's just too awkward. (Boyd and Richerson 2005: 63)

But still there is no clear sign of what they mean by "information," if not simply some *stuff* that brains or artifacts contain or carry.

For Boyd and Richerson, the standard evolutionary approach only uses the notion of information in order to explain why people behave similarly, without relying on reference to their genes (e.g. speak different languages and having different tools). For

this to be the case, something must be transmitted non-genetically, it must be transmitted socially.

In a sense, it seems inconceivable that culture is not something that is transmitted. I mean, if we see the same object in different periods of time, e.g. arrows, buildings or books, this might be an indication that is not only that the particular objects have been preserved by those groups. There must be distinct tokens of the same object because something remains even if the individuals that have produced such tokens change. That is, what reminds us that information is transmitted socially and used to make and to use those objects.

Besides describing culture as information, this account inherits the anthropological notion of cultural trait, which is then "reduced" to what is behind the process of production and use. So there is no doubt, for the standard evolutionary account cultures are collections of beliefs, ideas, values, skills, et cetera. Or in other words, culture is the collection of cultural traits, which they characterize as information. Information is not a matter of debate in this view.[36] Nevertheless, they use different terms, used in slightly different ways, to talk about cultural items: cultural variant, cultural packages and recipes for action.

3.4.1. Three terms for cultural items: variants, packages and recipes for action

The standard evolutionary approach has the notion of cultural trait in its grounds. They focus on traits because they are the data that are plugged into their model to test if their

[36]See Lewens 2015 Chapter 3, in which he analyzes the current naturalistic approaches and argues that for a "don't ask" and "don't tell" posture concerning giving an account of what naturalistic approaches mean by information. Since as far as it goes "The notion [information] is best understood as an open-ended heuristic prompt which encourages an examination of the ways in which bodies of behaviors, skills, beliefs, preferences, and norms are reproduced from one generation to the next" (Lewens 2015: 44).

models are good enough in explaining the distribution and variation observed in cultural phenomena. But as happened in the first half of the twentieth century, what a cultural trait *is* has not been agreed upon yet.[37] As I take it, this is why within this view, they use three terms to talk about cultural traits.

Cultural variants or units

This term was proposed by Boyd and Richerson. As for most naturalistic approaches, cultural items are not discrete units of transmission, and they define variants in opposition to memes (Henrich and Boyd 2002). They propose the term "cultural variant" in order to refer to the subject matter of culture, to what is transmitted in culture:

> Psychologists will one day exchange the terms of folk psychology for clearly defined, scientifically reliable concepts; in the meantime we use these terms in the interests of producing readable prose. (Boyd and Richerson 2005: 63)

Cultural variants, then, are just the information we talked about in this section: ideas, skills, beliefs, attitudes, and values, and so on, which are not discrete and of which we find instances in artifacts.[38]

Cultural packages

This term is use by Joe Henrich (2009; 2015), he is a collaborator with Boyd and Richerson and also talks about variants and representations. What is distinctive about Heinrich's approach is that for for him, culture is constituted by "packages of

[37]For a review on the notion of cultural trait see Lyman and O'Brien 2003, and O'Brien et al. 2010.

[38]While "cultural variant" is a common term for the standard evolutionary approach, let me note that when discussing other naturalistic approaches the term "representation" is often used to mean the same. Nevertheless, representations are not discussed.

information" of "knowing-how" which we use for interacting with our environment. One of the examples he uses is the techniques used by hunter gatherers for hunting. This is a complex package which involves a precise way to run after prey (that exhausts them), bringing water in a container, knowing how to find water, and making and using hunting tools. This package is transmitted from generation to generation thanks to the biases we have seen, prestige being a key one since the most prestigious hunters are the models from which others learn.

A feature of culture in this view is that these packages of information need not be explicit in people's minds. How to run on the hunt is something hunter-gatherers learn, but don't recall a specific way of doing it or a specific explanation of how to do it. "[T]he bearers of these cultural adaptations themselves often don't understand much of how or why they work, beyond the understanding necessary for effectively using them" (Henrich 2015: 27).

Recipes of action

Recipes of action as a unit of cultural transmission are analyzed by Lyman and O'Brien 2003[39] and it defines cultural traits. This term, in the standard evolutionary approach, is similar to the one of meme.

For this view, a cultural trait is composed of two elements: one is what they call "empirical unit" and the other is what they call "ideational unit."

An empirical unit is simply an actual token of a cultural item. It is something that you can hold in your hands or hear or see with your senses. An ideational unit would be the ideas, concepts and knowledge that make it possible for someone to make an

[39]Borrowed from the work of Krause 1985, Schiffer and Skibo 1987 and Neff 1992.

empirical unit. The ideational units are meant to be in the brain, but can also be extracted from the tokens: reverse engineering. This is an attempt to find a discrete unit for culture (similar to the one proposed by memetics).

For this view, these ideational units constitute the ingredients for what they call recipes for action. At first, the notion of recipes for action is meant to explain just artifacts, but they argue it can be extended to other cultural items. Ultimately, they consider that what is transmitted are recipes of action, by the transmission of the ideational units. One of the advantages of describing culture in this way is that the ideational units composing a recipe can be found in different recipes, and this is how they think that culture can be considered discrete even if on the surface there seem to be no clear boundaries between those recipes.

3.4.2. Summary

The standard evolutionary approach defines culture as the information that affects behavior. This is information that has not been transmitted genetically, but instead by social learning, or in other words, cultural information is what we learn from others by imitation, teaching or communication.

The transmission of culture is affected and shaped by our cognitive biases that are the product of our biological evolution. The main contribution of the standard evolutionary approach to a naturalization of culture has been the development of mathematical models that describe such psychological biases which "select" the cultural items so that they get transmitted.

Culture is in the brains of individuals, but also in artifacts. So, when talking about the transmission of culture, this means that the information (the cultural item) in one individual's brain ends up in another individual's brain or encoded in an artifact.

Although they use different terms to refer to cultural items, it is not a matter of debate that the subject matter of culture are precisely such items. Despite their differences in explaining cultural traits they all agree that the cultural trait notion refers to ideas, skills, tools, attitudes, norms, songs, and so on, and those are information in our brains and in artifacts.

3.5. Conclusion

Since E.B. Tylor's (1871) definition of culture, the social sciences have been struggling with this multifarious phenomenon of culture because it involves various classes of items that seem difficult to bring together. These are cultural items that range from ideas to artifacts: from things that are in people's minds, to things that are external to their minds.

The naturalistic explanations I have presented here are attempts that aim at explaining how such a diversity of items converge in culture in a naturalistic way. That is, they give a causal explanation of cultural items in term of *things* that are in chains of transmission, so that they get distributed within human populations.

In the attempt to answer why cultural items are the way they are, these accounts revolve around what seem to be key properties that cultural things have in common: being *socially transmitted*, *distributed in a group* and *stable* throughout the process. Those seem to be the *defining properties of the cultural*. Or in other words, what makes the items cultural. Moreover, they identify culture with whatever fits these properties to a point that, for the epidemiological, memetic and standard evolutionary approaches "to

explain culture is to answer the following question: why are some representations more successful in a human population, more 'catching' than others?" (Sperber 1996: 85).

It seems clear that, no matter which naturalistic approach one takes, culture is "reduced" to a single kind of item: representations, mental or public; memes that are in people's brains and artifacts; or that are made out of traits that have empirical and ideational units, all of which contain cultural information. Thus, for the naturalistic accounts items are the subject matter of culture.

This is why I group these approaches to culture under the label of the *Itemic View of Culture* (IVC, for short). IVC does a sort of "reification" of the cultural subject matter. Thus the notion of IVC classifies any approach to culture that assumes that *culture is the collection of items that are in people's brains and environment; items that are transmitted among the individuals of a population by non-genetic means, so that they get shared by individuals over time*.

As we saw in Chapter 2, constraints are necessary for information to flow, and attunement to constraints is necessary for an organism to be able to exploit such information. Thus, constraints must be key in explaining the subject matter of culture. They offer us what is missing in the IVC. In Chapter 4, I present the picture offered by a constraint-based approach, and then in Chapter 5, I will go through the differences between these two approaches.

4. What is culture about: the constraint-based approach

Constraints as the subject matter of culture

> However, if the micro-processes are fundamentally misunderstood, as I believe they have been in previous epidemiological approaches, the overall picture is of limited value.
> Sperber 1996: 50

In this chapter, I show that the fundamental subject matter of culture is constituted by what I call "*cultural* constraints," that is to say, *conventional constraints* to which *a set* of people are *not genetically attuned*. In a few words, it is the attunement of some individuals (more than one) to a conventional constraint that makes the constraint cultural, and also makes the set of individuals a cultural set. This is culture at its most fundamental level. I also show how more complex forms of culture arise out of this fundamental level. First, let me tell a story.

4.1. Yolanda's mornings

4.1.1. The story

Yolanda is new in town. She came to Donostia from Balazote, a village in Albacete, for a job as a researcher. She has already met her new co-workers. They seem quite nice. She will share an office with them. On her first regular working day, she arrives a bit late. She is shy and she is also a little nervous. She utters: "¡Buenos días!". Nobody

answers. She thinks they probably didn't hear her. She'll have to utter it louder next time.

And she does. On day 2, she utters "¡Buenos días!" to make sure they hear her this time. Same result. Nobody answers back. "What's wrong with these guys? How can they be so rude? Or perhaps, it's me. Perhaps they don't like me," she thinks. Then Aida, the co-worker from Ribadeo (Asturias) arrives and utters "¡Buenos días!" with no answer either, not even from Yolanda. "So, it's not me," she thinks. Perhaps it's the language. She remembers someone had told her that, given the linguistic and cultural diversity of the members of the Institute, the working language at ILCLI was English. So on day 3, she tries uttering "Good morning!" but the result is the same as before.

Perhaps it has something to do with the Spanish language. She has heard stories about language conflicts in Catalunya. Reportedly, Catalan people don't like Spanish speakers. If you address them in Spanish, either they'll answer in Catalan or give you no answer at all. "Perhaps, something similar is going on in the Basque Country," thinks Yolanda. So, she searches her dictionary and on day 4 she tries "Egun on!". No answer. So, after much hesitation, she reprimands the guys: "What's wrong with you? Why don't you reply when someone comes in and says 'good morning'?" They look at her startled. "What do you mean, we don't reply?" says Josu, "We always answer, don't we?". Zvonko and Igor nod: "Yes, we do."

On day 5, Yolanda says "¡Buenos días!". They all answer "¡Buenos días!". When Aida arrives, and says "¡Buenos días!", they all answer "¡Buenos días!", including Yolanda.

On day 6, Yolanda says "Egun on!". They all answer "Egun on!". When Aida arrives, and says "¡Buenos días!", they all answer "¡Buenos días!", including Yolanda.

On day 7, Yolanda says “Egun on!”, but there is no understandable answer. Josu has produced some unrecognizable sound; something like a grunt. Igor and Zvonko produce no sound. When Aida arrives and says “¡Buenos días!” there is no grunt even. But Yolanda observes that they make a little upward movement of their heads.

On day 8, Yolanda says “Good morning!”. No sound at all. She notices, however, that head movements were accompanied by small raisings of eyebrows. When Aida arrives, and says “¡Buenos días!”, she guesses that the head movement and eyebrow raising are systematic.

From day 8 on, she’s quite certain that that’s the way Igor, Josu and Zvonko respond to a greeting in the office. Whomever the greeter is, whatever language the greeter is using, they lightly raise their heads and eyebrows with or without producing an accompanying inarticulate sound.

4.1.2. The account

Our constraint-based account offers a natural explanation of what’s going on with Yolanda’s mornings. She’s attuned to the following cultural constraint:

C_1: If *x* greets *y*, then *y* greets *x* back.

She never thought much about it. It might well be that she is not aware of the constraint and of her attunement to it. Until coming to Donostia and meet Igor, Josu, and Zvonko it always worked. That means that the people she has met so far in Albacete, in Galicia and other places were attuned to C_1, or perhaps, more specifically, to

C_2: If *x* says “¡Buenos días!” to *y*, then *y* says “¡Buenos días!” to *x*.

C_1 and C_2 are conventional constraints. They are not transmitted genetically, but "culturally."[40] And they are violable. As Yolanda has learnt by experience, people may choose not to respond to a greeting. Even she has so chosen in the past. But very rarely. In her experience, the constraint worked most of the time. And, again, since it worked, neither she nor her fellow citizens needed to be aware of the constraint and their attunement to it: "[c]hildren use words to convey information about their wants and needs long before they are conscious of words as words" (Barwise and Perry 1999 [1983]: 18).

Following our distinction between modes of attunement made in Chapter 2, we can say that Yolanda's unaware attunement to a constraint is a case of *simple* attunement or *s-attunement*. We can say now, that before the events in Yolanda's Donostia mornings, Yolanda was *s-attuned* to C_1 and C_2, as were her fellow citizens of Albacete and Galicia.[41] Notice that, for a person to be s-attuned to a constraint, she needs no explicit representation of the constraint. As she never gave a thought to it, she does not even distinguish between C_1, C_2, or any other greeting constraint. No mental representation is presumed for s-attunement; just the capacity to recognize or identify a situation as a greeting situation and act accordingly, by greeting back.

Yolanda's simple attunement to C_1 and C_2 changed on day 1 in the story, when she got no reply to her utterance of "¡Buenos días!" For one thing, she became *aware* that she was attuned to some greeting constraint; a constraint that, for some reason, seemed not to work that day. She might not have an explicit representation of what her greeting

[40] As we will see in Chapter 5, "transmitted" may not be the right term here. The itemic view requires it, but our approach offers an alternative account of how the cultural subject matter gets *shared* in a group.

[41] I will shortly distinguish between various modes of sharing attunement to a certain constraint, at the plural, social or cultural level.

constraint is, but she is aware that she is attuned to a certain constraint; the same constraint that her fellow Albaceteans and Galicians are s-attuned to. So Yolanda is now *aware attuned* or *aw-attuned* to C_1 and C_2. Aw-attunement does not require Yolanda to have an explicit mental representation of C_1 or C_2. It just requires her s-attunement to the constraint plus her awareness of it. She will be *fully consciously attuned or fc-attuned to* C_1 and C_2 when she is aw-attuned to the constraint and gets an explicit (and accurate) representation of them.

On day 2, Yolanda is aw-attuned to C_1 and C_2 but she is not fc-attuned yet. She did not think again about the particular constraint she was attuned to, and at the time she thinks that, as far as she knows, the Basque guys might be attuned to the very same constraint. The problem might be a problem of perception. They just didn't hear her utterance. So, she tries a louder greeting. When that doesn't work, she starts considering other possibilities. She thinks about the constraints she is attuned to, and she explicitly thinks about C_1 and C_2 as

C_1: If *x* greets *y*, then *y* greets *x* back.

C_2: If *x* says "¡Buenos días!" to *y*, then *y* says "¡Buenos días!" to *x*.

Yes. She is fc-attuned to C_1 and C_2. She thinks that Igor, Josu and Zvonko might be attuned to C_1 and C_2. It might be just that they violate the constraint because of her. It is a conventional constraint, so it can be violated. Or maybe, being a conditional constraint, they have the condition that C_1 and C_2 hold unless *x* is identical with Yolanda. This hypothesis is rejected when they react exactly the same with Aida's greeting. Then Yolanda thinks about the language. She thinks they may be attuned to C_1 but not to C_2. After trying C_3 and C_4 on days 3 and 4, she rejects these hypotheses too.

C_3: If *x* says "Good morning!" to *y*, then *y* says "Good morning!" to *x*.

C_4: If *x* says "Egun on!" to *y*, then *y* says "Egun on!" to *x*.

She is starting to lose hope with these people, and to think that they are not even attuned to C_1. And that's when she reprimands them. But they are surprised. As far as she could tell, after challenging them, they are attuned to C_1 and C_2. Now, how do we explain their answer, assuming they are being sincere?

We have again a natural account of the events. After Yolanda's reprimand, they explicitly represented the constraints C_1 and C_2. So, we can say that they know the constraints, they accept them, and they believe they are attuned them. If they were attuned to them, they would be fc-attuned to them. But they are not fc-attuned; not even aw-attuned or s-attuned. Knowing a constraint does not involve being attuned to it, as being attuned to a constraint doesn't imply knowing (having an explicit accurate representation of) it.

Igor, Josu and Zvonko know the constraints C_1 and C_2; they have an explicit representation of them and they can act upon them. They can exploit them. On day 5 and 6 they do it. They use their mental representation of C_1 and C_2 and respond accordingly to Yolanda's and Aida's greetings either in Basque or Spanish. But it didn't last. Two days acting according to the constraint they know was not enough to get them s-attuned to C_1 and C_2. Whatever Igor, Josu and Zvonko think about the greeting constraints they are attuned to, Yolanda has noticed that there is another constraint holding in the office among the five researchers:

C_5: If *x* says "¡Buenos días!/Good morning!/Egun on!" to *y*, then *y* raises their head and eyebrows to *x*.

And that C_5 always holds only when x belongs to the set {Aida, Yolanda} and y belongs to {Igor, Josu, Zvonko}. She likes C_2 in whatever language better than C_5, but she is afraid it might evolve into

C_6: If *x* raises their head and eyebrows to *y*, then *y* raises their head and eyebrows to *x*,

with *x* and *y* ranging over the whole set of researchers in room C_8 of the institute. Still that would be better than abandoning any attunement to C_1 altogether.

4.2. Cultural constraints

I am now in a position to state in more precise terms what I take to be the fundamental notions of culture. Remember that the standard naturalistic approach to culture defines it as "widely distributed, long-lasting representations" (Sperber 1996: 57), representations "that are widespread and enduring in a social group" (Sperber 1996: 25). Our first and most important difference with that view concerns the subject matter of culture. In our view, it is not representations, but constraints; and not any kind of constraints, but just conventional constraints; and not any conventional constraints, but those to which more than one individual is attuned.

Our notion of *attunement* involves systematicity, that is, the notion of persistence in time of the cultural subject matter. There is no attunement without regularity or systematicity, and that means time.

On the other hand, our notion of sharedness (distributed, common and fully shared attunement) captures the notion of distribution of cultural content and its spread within a society, as well as for the various notions of *cultural group* in place. In its basic sense, a cultural group is nothing but a set of people defined by its members' individual s-

attunement to a conventional constraint. That makes the constraint cultural and the group (i.e. the set) cultural as well. There is no need of any other glue to make a group out the set of individuals. The individuals may have come out perfectly with their attunement to the same constraint entirely individually, without any sort of transmission (imitation, communication or whatever) among them. This can be true of any sort of mental or public representation they share. We can talk of micro-, meso- and macro-cultures and cultural groups. We can talk of more or less ephemeral or long-lasting cultures. But we do not need to find or postulate any chain of representations at work within the group. Culture in its basic form is a matter of distributed s-attunement of a plurality of people to a constraint.

I do not mean to say that representations and their transmission do not play a role in the explanation of cultural phenomena. My claim is rather that it is insufficient to explain culture in its more basic forms; the forms that make representations and their transmission possible.

The notion of common aw-attunement captures a stronger sense of a cultural group: the sense in which individuals are aware that they are attuned to a constraint. In this sense, individuals are aware that they belong to a cultural group with members that are also aware that they belong to the group. But still at this level, the population that is commonly aw-attuned to the constraint need not share any explicit representation of it. When they have it, we are talking about fc-attuned people that fully share the constraint.

These distinctions serve to capture quite naturally how culture works in its most fundamental forms. Let's illustrate this with a fictional example.

4.2.1. Z-lang. The language of Z-landers

Z-land is a remote island in the Pacific.[42] Z-landers have never had any contact with any non-Z-lander, and their language, Z-lang, though simple in some respects—for instance, they lack a word for the English indexical "here"—serves their basic communicative needs. All adult Z-landers are fluent speakers of Z-lang and their children acquire it naturally. From our point of view, Z-lang is just a set of conventional constraints as with any language, and Z-landers are distributively s-attuned to them, which together make the constraints cultural. For Z-landers, Z-lang is as natural as rain in Z-land. They do not distinguish raining in Z-land from raining in some other place because they are not aware of any other place but Z-land. When they speak, they don't distinguish between speaking Z-lang and speaking some other language, because they are not aware of any other language. Everything works fine, so they need not be aware of any of the Z-lang constraints they are attuned to. That's what we mean when we say that they are individually s-attuned to Z-lang and that the s-attunement is distributed among non-infant Z-landers.

One day a pair of Basque Jesuit missionaries arrived on the shores of Z-land causing some surprise and confusion to the few Z-landers who first met them, a small group of fisherwomen. After overcoming their initial shock at the missionaries' skin color, their dark costumes and lack of hygiene, the Z-landers spoke to them. And there came another surprise, the newcomers couldn't speak. They did produce some sounds, not very different from the sounds produced by some animals in Z-land, but it wasn't language. Were they humans? Were they dangerous? They left the strangers there and went into town to discuss the matter with their fellow Z-landers.

[42] Of course, the example is inspired by Perry's (1986) Z-land.

After some deliberation, they agreed on a couple of issues. They, the Z-landers, spoke a language, Z-lang—that they named "the language," a new word in Z-lang—and the strangers didn't speak it. They were not sure whether the strangers couldn't speak at all or didn't speak Z-lang but something else. They needed to do more research to decide that. They invented the Z-word "Barbarian" to name the (non)-language the strangers might (or might not) speak and also the newcomers themselves. We can say that it is at this stage when Z-landers passed from mere distributed s-attunement to Z-lang to common aw-attunement to it. Notice that they did not need, and did not have, an explicit representation of the constraints constituting Z-lang. They just spoke it and now they were aware that they spoke it and some other people didn't. But they didn't know what speaking it exactly consisted in. They didn't have the slightest idea about how to represent that.

Time and constant contact with the missionaries brought some further changes. The missionaries were amateur grammarians and with their help, a small group of Z-landers, named "The Academy of Z-lang" started to describe their language, to make explicit the constraints of Z-lang. Supposing that their descriptions were accurate, we can say that the members of the Academy of Z-lang became fc-attuned to their language and fully shared it. As it happened, given their contribution to the grammar of Z-lang, the Barbarians were named members of the Academy. In fact, they got to know the grammar of Z-lang better than any other member of the Academy, even if they never became fluent enough to participate naturally in an ordinary Z-lang conversation. This points to an important distinction that it is worth emphasizing once again: the distinction between being attuned to and knowing a constraint.

4.2.2. To share a cultural constraint

We have illustrated the application of the distinction between s-, aw-, and fc-attunements of an individual to a constraint in a particular case. We'll now elaborate on those distinctions looking at the various ways of "sharing" the constraints within a plurality of people.

Naturalistic approaches to culture, as we have seen in Chapter 3, take sharing the subject matter of culture as central to the explanation. To share among a significant number of people and for a significant amount of time a representation or a meme (that is, an information package of some sort) is what culture consists in, given that information is transmitted by non-genetic means. I agree with the general picture, but I would amend its details in two important respects.

First, culture, in its most fundamental form, needs no mental representation of its content in the mind-brain of the people involved. And second, to share a culture, in this fundamental sense, there is no need of transmission by imitation, copying or communication between people of a group.

Both aspects may also be illustrated by our previous example. Before her arrival to Donostia, Yolanda was not aware of her attunement to C_1 and C_2. And neither were the Albaceteans and Galicians, in the circumstances we imagined. They were all individually s-attuned. Thus, C_1 and C_2 defines a set of people via their s-attunement to the constraints, without the constraints being represented in any way in a person's mind. I will call this situation, a case in which the individuals of a set are s-attuned to a constraint, *distributed* s-attunement. In a sense, distributed s-attunement of a constraint is a way to share the constraint and the attunement to it. But the attunement is an individual relation to the constraint that *happens* to be the same constraint for a plurality

of individuals. In the case of natural constraints this is mandated by their biological architecture and the individuals' environment; in the case of conventional constraints, it is not. Does this kind of sharing of an attunement require any sort of transmission? Well, it's difficult to know how these particular constraints arose in the first place, and that's an empirical issue anyway. I contend, in any case, that transmission is not conceptually required in order for the cultural constraint to arise. But I'll leave the issue of the birth, life, and death of a cultural constraint for the next section to focus now on the different ways of sharing a constraint.

A set of people can share a constraint in a way that goes beyond distributed s-attunement. As we have seen, Yolanda became aware that she shared some greeting constraint with Albaceteans and Galicians but possibly not with Basques, when she arrived in Donostia and noticed that, whatever the constraint, it seemed not to work in her new environment. We can imagine that other people who were also attuned to C_1 and C_2 had similar experiences; so we have a set of people, including Yolanda, who are aware of their attunement to some constraint. I'll talk in this case of *common* attunement. These individuals are individually aw-attuned and commonly attuned to C_1 and C_2, even if they need not have an explicit representation of C_1 and C_2. When Yolanda eventually got an explicit representation of C_1 and C_2, she became fc-attuned to them. Again, we can think that other people in the set of Albaceteans and Galicians commonly aw-attuned also made explicit representations of C_1 and C_2 and became fc-attuned. We'll say that people are individually fc-attuned to the constraints or that *fully shared* them.

Hence, within the set of people that share a certain constraint we can distinguish at least two other sets. First, of course, there is the set of all Albaceteans and Galicians

who are distributively s-attuned to C_1 and C_2. Let's suppose that it includes all Albaceteans and Galicians. This set includes however a second subset, those who are aw-attuned commonly. And this includes a third subset of people who are fc-attuned, so they fully share the constraint.

If we are right and the itemic view requires an explicit representation to be shared, then, the only cultural group considered here as such would be the third one. Just the case in which people share an explicit representation of the constraint, would count as cultural. And the cultural group would only be the third one; the set of people who are, in our terminology, fc-attuned to C_1 and C_2. The constraint-based approach, however, explains how this set comes into existence as a cultural group, starting from the basic and distributed s-attunement.

4.3. Being attuned to versus knowing a constraint

As we just saw, a certain individual can have explicit knowledge of a constraint without being attuned to it in any sense (neither fc-attuned, aw-attuned, nor s-attuned), and she can act upon her explicit knowledge. In the other direction, an individual can be s-attuned or even aw-attuned to a constraint and not know the constraint she exploits. If she is fc-attuned, on the other hand, then she knows the constraint. In other words, fc-attunement and knowledge involve an explicit representation of the constraint. Having an explicit accurate representation of a constraint is both a necessary and a sufficient condition for knowledge of it. Having an explicit representation of a constraint is necessary for fc-attunement, but it is not sufficient.

Using our previous example, we can say that the following statements are true about any Z-lander *z*, previous to the arrival of the missionaries:

a. *z* is s-attuned to Z-lang

b. *z* does not know Z-lang

After the arrival of the missionaries, but before the elaboration of the grammar, we have that:

a' (=a). *z* is s-attuned to Z-lang

b'. *z* is aware that she is s-attuned to Z-lang, i.e. *z* is aw-attuned to Z-lang

c'. *z* is aware that all z's are aw-attuned to Z-lang, i.e. *z* is commonly attuned to Z-lang

d' (=b). *z* does not know Z-lang

Notice that *b'* could naturally be rephrased as "*z* knows that she is s-attuned to Z-lang"; *c'* can be rewritten as "it is common knowledge among *z*'s that they are aw-attuned to Z-lang." To avoid confusion, however, I'll stick to my terminology, and keep the verb "to know" for the case of explicit (i.e. represented) knowledge of a constraint or a set of constraints. In my terminology, s-attunement and aw-attunement are insufficient for knowledge. Only fc-attunement involves knowledge of a constraint. So, in my use of the terms, native speakers of a language who are aw-attuned but not fc-attuned to their language *do not know* their language. This is the case of speakers who are illiterate, that is to say, they are not formally educated in their own language. They just do not know any explicit representations of the linguistic constraints they are s- or aw-attuned to. Some linguists and philosophers would talk about *implicit knowledge* in this case. As long as the emphasis is on *implicit*, and *knowledge* does not require the assumption of

an articulated representation in their mind/brains, the difference would be merely terminological.[43]

When the Academy of Z-lang finishes its grammar, the constraints are made explicit. If we assume that they were accurately described, then, the following is true about the *z*'s who are members of the Academy:

a" (=a=a'). just as before and then

b". *z* is fully conscious that she is aw-attuned to Z-lang, i.e *z* is fc-attuned to Z-lang

c''. *z* is fully conscious that all *z*'s in the Academy are fc-attuned to Z-lang. i.e. *z* shares Z-lang with all *z*'s members of the Academy

d". *z* knows Z-lang

So the Z-lander members of the Academy not only speak their language, but they have an explicit representation of their language, and, only then *know* their language in my sense.

Now, even if the grammar of Z-lang is descriptively perfect, and the two missionaries, through their close collaboration, ended up with a nearly perfect *knowledge* of the constraints that Z-lang speakers are attuned to, and we can say in this

[43] Another caveat might be required here. My concept of "language" here corresponds to what generativists call "external" or "E-language" (Chomsky 1986). I take Z-lang to be an E-language, and it is in this sense that I claim it is a set of cultural constraints. The notion of grammar also corresponds to an E-grammar. As far as I can tell, this is compatible with the concept of (a universal) I-grammar or language acquisition device; a device, which, from my perspective would amount to a set of natural constraints, which I-linguists try to make explicit. Humans would come biologically equipped with such a device that allow them (during certain years) to get attuned to any E-language in their environment. But, obviously, these issues go beyond the limits of the present work.

sense that they know Z-lang, it is perfectly possible that they are not themselves speakers of the language because they are not attuned to the constraints.[44]

But suppose now that the grammar written by the Academy of Z-lang is not entirely correct, that, driven by the missionaries' preference for analogy over anomaly, they misdescribed the constraints and treated, say, verb-tenses as if they were regular when they were in fact irregular. We would have in this case two sets of constraints, the ones belonging to Z-lang, the language actually spoken by Z-landers, and some other constraints belonging to a language that nobody speaks, call it X-lang. Nobody speaks X-lang, but some people know it, the members of the Academy of Z-lang. Z-lang is spoken by Z-landers, but nobody is attuned to X-lang.[45]

Perhaps the Academy built schools for educating children and adults by learning the grammar of Z-lang, which was actually the grammar of X-lang. By learning the grammar, they gradually changed some of the constraints they were attuned to, such that finally they ended up talking something in between X- and Z-lang; Y-lang, for example. I am convinced that something similar has happened and still happens in the history of many languages.[46] Explicit cultural constraints may not only describe accurately or not

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[44] I am not saying that this is the usual case, but just that it is possible, and that illustrates a clear case in which attunement to, or implicit knowledge of, linguistic constraints, on the one hand, and explicit knowledge of them, on the other, come apart. Incidentally, this is quite a common phenomenon in the Basque Country, where some people learn Basque just to obtain a certificate. They may succeed in the exam that "proves" that they know Basque, but they are not attuned to the constraints of Basque and thus are unable to maintain a natural conversation. The cases of the missionaries who produced the grammars of Tarascan (Mexico, 1558), Quechua (Peru, 1560), Nahuatl (Mexico, 1571) and Guarani (Brasil, 1640) (Lepschy 1998) might not have been very different from our Basque missionaries in Z-land. We may not ordinarily put it like that, but, in my terminology, they could have been people who know the language but they're not attuned to it. They are formally educated in a language they don't speak. That's how I often feel about my knowledge/attunement of English.

[45] Thus, X-lang constraints are something like embryonic or potential constraints and not cultural or conventional constraints in a strict sense, insofar as no one is attuned to them.

[46] It is not an accident that the "unification" of many languages happened together with the creation of a state that officially adopted that language with an Academy to promote it. The

the actual constraints that people are attuned to, but also alter those constraints. Our attunement to cultural constraints starts, evolves and eventually dies, which means that the constraints themselves start, evolve and die with them. That's the topic of the next section.

4.4. Birth, life and death of a cultural constraint

4.4.1. Birth

Natural constraints are out there; they constitute the way the natural world works. They are independent of the humans that populate it. Of course, it is the attunement to these constraints that allows humans to survive in that world. But natural constraints would still be out there without the attunement of any human.

Conventional constraints and, in particular, cultural constraints, however, would not be there without the attunement of any human to them. They are the result of humans' attunement to them. But how does that occur in the first place?

In my view, cultural constraints (conceptually) come from conventional constraints; they are conventional constraints meeting some conditions on distributed attunement in a population. But what are conventional constraints? What is a convention? My view here is a bit different from the view adopted by Situation Theory, and, more generally, from the views after Lewis' seminal works on conventions (Lewis 2002 [1969])[47] Barwise makes explicit that in their picture a conventional constraint involves a

cases of Italian and Spanish in the fifteenth century and French, English and Polish in the sixteenth, are good examples. See Lepschy 1998 for the history of linguistics in that period.

[47] See for example Gilbert 1983, Millikan 1998, Stotts 2016.

population of agents and some notion of mutual knowledge (or mutual belief) for those agents.

> A very important property of conventional constraints *R* is that they must be mutual, or shared (Lewis [125]). [Footnote 6: See Chapter 9 below for a discussion of mutual knowledge] They must mutually bind all the parties to the convention in order to be successful communication channels between agents. Consider a case of two agents, say *A* and *B*, who share a convention *R* used to communicate information. In order for this to work, it is necessary that both parties know of the convention *R*, of course, but more is necessary. This knowledge of *R* must be mutual knowledge. That is (following Clark and Marshall (1981)), there needs to be a real situation s such that (i) both *A* and *B* know the facts of s, (ii) among these facts is the constraint *R*, but (iii) also among the facts of s are the facts that *A* knows the facts of *s* and that *B* knows the facts of *s*. From this assumption, it typically follows that *A* knows that *B* knows of *R*, *B* knows that *A* knows of *R*, and so forth. [Footnote 7: This property of conventional constraints was missed in S&A, in two senses. First, we did not fully realize its importance. Second, the formal set-theoretic machinery used in S&A does not allow the modeling of such circular situations. For more on this, see Barwise and Perry (1985), Barwise (1986), (1985).] The consequences are needed to see how agents can use such conventions to affect others in the way they intend. (Barwise 1989: 69)

Conventional constraints, then, should include mutual knowledge of them, according to Barwise. In my view, however, there is conceptual room for an individual conventional constraint, as we have seen in Chapter 2. A convention that is the convention of a single individual is, if not typical, at least conceptually possible. I contend that it is even plausible that that's how many of our cultural constraints are born: as practices, customs, or procedures adopted by a single individual to perform quite individualistic regular acts that need not involve the mutual, common or shared belief with any other individual. After Lewis, conventions have been understood as ways of resolving coordination issues among various agents. But I think that conventions can and do arise from coordination problems in purely individual planning and action.

I have some options to go from home to work: I can walk, ride my bike, go by bus, or by taxi. In fact, I realize that I never considered this last option (they are too expensive for my budget), and other options are excluded (I don't know how to drive a car). But the thing is that I do not consider all these options every morning. Adopting a *habit* is just a way of stopping thinking about these different options and taking decisions every day. I just don't think about it, and ride my bike every morning. When I take my bike, I don't think about the best route to campus either. Perhaps, I never considered the various options. I just did it some way one day, and then repeated it with small variations. From my perspective, acquiring a habit is just an example of getting attuned to a convention, establishing a systematic relation between types of situations; and by that attunement, creating the convention itself: a convention that is entirely personal, a convention that does not involve mutual knowledge of any kind. Think about the habits adopted by the first driver of the first car in Donostia. When she acquired some habits about the itinerary from home to work, they were personal, and not social in any sense. One can have a conventional route that is entirely personal, that isn't copied from anyone else, and that nobody imitates.[48]

Humans are creatures of habit. We adopt habits for the most simple or idiosyncratic reasons. I put the knives in the washer in a particular way ("pointing upwards"), I always follow the same itinerary from home to work (along the Boulevard, and Ondarreta) and back. I chain my bike in the same way (resting the bike against a post on the side where I cannot damage the lock bracket and then put the chain through the bike's frame) … No doubt, some of these habits I took from others without considering their reasons, for some others, I considered the reasons (putting the knives point up is

[48] That does not mean that the conventions one adopts are arbitrary. The agent might have reasons having to do with their environment or their natural capacities or tendencies. My point is just that they can (though need not) start in a purely individual way.

good for the knife blades–Gregory's reason—but not for the integrity of the agent's hands—my mom's reason to put them downwards). And in those cases, the conventional constraints would not be merely individual, but cultural. But other things start with no clear reason and no obvious copying or imitation, perhaps in purely idiosyncratic ways.

In my view, then, all conventional constraints are potentially cultural. If there is more than one single individual attuned to the conventional constraint, it will become cultural.[49]

4.4.2. Evolution

One day in the bar Rekalde, I asked the waiter for a favor. I asked whether they could add a fried sausage to my order of a *mixto serrano-vegetal* sandwich. He discussed it with the cook, and they agreed that they would do that for me. And it was excellent. I didn't have a favorite until then and I had eaten most of the sandwiches on their menu. But since then, whenever I felt like eating a sandwich at the Rekalde, I would order a *mixto serrano-vegetal* "with a…" and they would understand and add a sausage to it. We can say that, initially I was the only person attuned to the constraint

> C_1: If you happen to feel like eating a sandwich at the Rekalde, order a *mixto serrano-vegetal* "with a…"

Gradually, I probably dropped the "with a…" and we can say that the waiters of the Rekalde and I got attuned to the following constraint:

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[49] Paraphrasing Carroll, I would say that my point in introducing the concept of an individual convention here is "to block the facile identification of the cultural and the conventional" (Carroll 2004 [1985]: 489). In the context of a discussion about movies, he talks of plows as a cultural invention rather a convention. From my point of view, the "invention" of the plow could have been the product of an ingenious individual's conventional constraint, that, when adopted by her fellows became a cultural constraint.

C_2: If Josu orders a *mixto serrano-vegetal*, that means a *mixto serrano-vegetal* with a sausage.

Other customers observed my exchange with the waiters and asked me about the sandwich. They started ordering themselves "a *mixto serrano-vegetal* with a sausage," "a *mixto serrano-vegetal* with a…," or "a *mixto serrano-vegetal* like Polu's." Anyhow, the owners of Rekalde realized that more people have adopted their own version of C_1 and C_2. So, *"mixto serrano-vegetal"* started to be ambiguous. It either meant what it initially meant or had my idiosyncratic and now more popular meaning. The cook of the Rekalde decided to name the second meaning after me. That's how the *Polu sandwich* got onto the Rekalde's menu. "Polu" is one of my nicknames, by the way. It's not clear whether this should count as the birth of a new constraint, which ends up being explicit in the menu of the Rekalde, or it's better understood as an existing constraint that evolves into another. There might be no fact of the matter in cases like this.

Take again the case of Z-lang. Of course, in this case even the first of the constraints may be taken to be essentially social. We can assume that languages arise for communication and, thus, social purposes. So, the conventional constraints that constitute a language have a social and, hence, cultural character from the very beginning.[50] The constraints change, evolve, get more complex, sometimes simpler by the interaction of many factors. This is not the place to deal with such difficult issues. Suffice it to say that one of the factors is the explicitation of the constraints, which elevates, so to speak, a constraint from mere distributed s-attunement in a social group, to shared fc-attunement. As we saw, the explicitation of constraints in a grammar can shape the actual constraints the people are attuned to.

[50] Remember that I am talking about E-language here, and not about our linguistic biological endowment or I-language.

Another case of evolution of constraints can be illustrated by an important and more realistic social and cultural matter than Z-lang. I'm thinking about sexism. Here is how the problem of sexism can be sketchily understood from the constraint-based approach to culture.

We can say that, as we are becoming conscious of gender inequality and discrimination, we are slowly becoming aware of how sexism is present in our behavior. Sexism, however, is not a recent phenomenon. Our sexist behaviors have very old roots. Previous generations were probably more sexist than we are. But they didn't know they were. I would say that most men and women were distributively s-attuned to many constraints that were, in fact, sexist (that is, they represented, caused or promoted gender inequality), without practically anyone being aware of the constraints they were attuned to. At a further stage, some people (the early feminists) became aw-attuned to the constraints and commonly so. That is, they became aware that there were constraints that practically all the members of their societies, including the feminists themselves, were attuned to. They didn't know what those constraints explicitly were, but only their pervasiveness and their pernicious results: women were excluded from the labor market, they were confined to unrecognized "housekeeping," they were excluded from suffrage, they were subject to systematic sexual abuse … and a long et cetera.

Our early feminists had a tough job. Ending sexism required action at two different levels, at least:

- They had to promote aw-attunement to be more commonly shared in their societies. People need to be aware that it is their attunement to some constraints that make them act in certain ways, which is at the root of sexism.
- They had to make the relevant constraints explicit, i.e. become fc-attuned to those constraints, in order to be able to change and eventually substitute

them for alternative constraints that promote equality and end up killing the sexist constraints.

Being fc-attuned to the constraints and recognizing them as sexist is an important step, but it may well not be sufficient for ending up with one's attunement to that constraint. You can decide to stop being attuned to some particular sexist constraint, but it is not easy. Think about these two constraints:

C_1: If you think/talk about an indeterminate nurse, you think/talk of a woman

C_2: If you think/talk about an indeterminate doctor, you think/talk of a man

For a long time, you, like me, might have been attuned to these constraints without being aware of them. When the feminists' work made them explicit you were made fc-attuned to them, and you were conscious that you shared your attunement with many, if not most, people in your society. It is true, from childhood, that you encountered more male doctors than female (perhaps all?); more female nurses than male (perhaps all?). But that's not true anymore. Again, due to the tremendous job of early feminists, the sexist distribution of professional roles is weaker now in education and training. Women gain access to university studies in every sector, and there are more women doctors than men in my primary care center, although the nurses are still mostly women. But I have to admit, I'm still attuned to C_1 and C_2. In a nutshell, I am a feminist but I'm still sexist; that is, I'm not a feminist.

That sounds like a blatant contradiction, but actually it is not. And the constraint-based approach can explain why. I can rightfully consider myself a feminist when, being fc-attuned to the explicit constraints like C_1 and C_2 that I recognize as sexist, I decide to fight my and everyone else's attunement to them; the ones that are explicit and those sexist constraints that are not explicit yet. In that respect, I am a feminist. On the other hand, my attunement to C_1 and C_2 is still there. I cannot help being attuned to

them. Yolanda tells me, “I went to the doctor,” I ask, “Was he nice?” “Actually, I saw the nurse,” says Yolanda; I ask, “Was she nice?” Another example that illustrates how difficult it is to avoid attunement is provided by language: one cannot help exploiting linguistic constraints of a language to which one is attuned. Hearing an utterance, one cannot help recognizing the sounds as a sentence with certain words, certain syntactic structure, and certain meaning (even if we may lack the information to determine what the speaker meant—she said and what she implicated). We cannot deliberately switch off our phonetic/syntactic/semantic device, so to speak, the way we can close our eyes.

It is hard to free oneself and our fellow citizens from attunement to sexist constraints. They will disappear as we get dis-attuned to them. Slowly, but surely, some of them are disappearing. The challenge is to make them all disappear.

4.4.3. Death

Cultural constraints disappear when we cease to be attuned to them. Knowledge of the constraints may survive, as long as there is any human that (explicitly) knows them. And that can be a good thing—“Those who don’t know history are doomed to repeat it”—but it can be knowledge of a dead constraint.

Consider the case of Latin. Many people were s-attuned, aw-attuned and fc-attuned to the set of constraints constituting the language. The constraints were made explicit in their grammar.

But for various reasons the constraints evolved differently in different locations in the Roman Empire, and at some point nobody was attuned to Latin, but to different languages like Italian, French, Portuguese, Catalan or Spanish, with the attunement to Latin confined to monasteries and churches. The set of constraints of Latin was kept

explicitly represented in grammar books, so knowledge of them still survives, but as long as nobody is attuned to them, Latin is now a set of dead constraints.

4.5. Conclusion

As we have seen, the notion of constraints and our attunement to them is fundamental to the subject matter of culture. Current naturalistic approaches miss that point when they restrict their attention to information items or representations:

> "Talk of 'culture' (whatever the preferred definition or theory of culture) is about this widely distributed information and about its material realizations inside people's minds and in their common environment (Sperber and Hirschfeld 2006: 149)
>
> 'Culture' refers to this widely distributed information, its representation in people's minds, and its expressions in their behaviors and interactions. (Sperber and Hirschfeld 2004: 149)

If I am right, constraints and attunement, which don't correspond to information and our representation of it, need to enter into the picture of culture. Constraints are needed to have a naturalistic account of what information is. Attunement is needed to account for how we get information and how we eventually end with representations like knowledge and beliefs.

There is a basic level of culture in which a set of people can be said to share a culture if they are distributively s-attuned to the same constraints. And that is something more common than it seems. This is how we can understand why a set of people behave in very similar ways with no informational packages represented and transmitted between them.

I have explained the crucial difference between knowing and being attuned to constraints. An individual can be attuned to and not know (have represented) the constraints to which is attuned, and vice versa. The level of awareness of individuals regarding their attunement allows us to explain various aspects of culture: the difference between different cultural groups (with distributed s-attunement, common aw-attunement and fully shared fc-attunement); the birth, evolution and death of cultural constraints.

In the next chapter I will compare the constraint-based account of culture and IVC presented here, and go through the differences concerning some of the key defining properties of the cultural seen in Chapter 3.

5. Two alternative approaches?

Differences and similarities on key notions

5.1. Introduction

The main thesis of the present work is that an adequate explanation of culture requires inclusion of constraints in the picture. I have elaborated a constraint-based approach that takes constraints as basic, in explicit contrast to the naturalistic views that I grouped together as the Itemic View (IVC). Now, one can ask whether I intend my approach to be an alternative to the IVC; whether I think that my approach should replace the IVC or not. In short: No. I think the constraint-based approach (CBA, for short) *complements* the IVC. It is a *necessary* complement, though. In this chapter I explain why. To do that, I'll point to the main differences between the IVC and my approach.

5.2. Constraints versus representations

The first and most obvious contrast between CBA and IVC concerns their basic notions of an item (and, in particular, with the epidemiologist's notion of representation) and my notion of a constraint. According to the itemic view, two people shaking hands, for instance, would constitute a greeting only insofar as the hand-shaking *represents* greeting, which would only be the case if the hand-shakers had a mental representation of the hand-shaking *as* greeting that would cause them to greet by hand-shaking in the future. The reproduction of the hand-shaking as the effect of those mental

representations would constitute a cultural chain which, in turn, would make this particular way of greeting, a cultural representation or a meme.[51] That's how I interpret Sperber's insistence on the association between mental and public representations: (…) "public representations have meaning only through being associated with mental representations" (Sperber 1996: 80-81).

To put it bluntly, I think that IVC puts the cart before the horse. Admittedly, a hand-shaking can publicly represent a greeting and can cause a mental representation of hand-shaking as greeting in people's mind; but, to my mind, more than that or before that, conceptually speaking, a hand-shaking *is* a greeting, and not a representation (public or mental) of it.

Remember the case of Yolanda when she was happily back in Albacete. As I see it, she and her fellow Albaceteans didn't represent greeting by uttering "¡Buenos días!" to each other; they just greeted, being distributively s-attuned to the same conventional constraint. Given their s-attunement to the relevant constraints and their identification of the situation as belonging to a certain relevant type, they were able to behave accordingly, but this didn't require the representation, public or mental, of the constraint. It was after arriving in the Basque Country, when things started not working as expected, that we can start talking about her representation of something or other; and, more precisely, when she got fc-attuned to the constraint, that we can start properly talking about her mental explicit representations about the constraints, the real situations she encountered and the situation types they may belong to.

[51] As I pointed out in Chapter 3, the notion of a meme is assimilable to Sperber's notion of representation: "[t]he meme model might be seen as a limiting case of the influence model: the case where influence is·either 100 per cent or 0 per cent —that is, where descendants are replicas" (Sperber 1996: 105).

The standard evolutionary approach points to that when it acknowledges that cultural items are to some extent implicit or unconscious in us.[52] For Boyd and Richerson culture is information which is not "always consciously available" (Boyd and Richerson 2005: 5).

> So we will use the term *cultural variant*. We will also sometimes use the ordinary English words *idea*, *skill*, *belief*, *attitude*, and *value* without meaning to imply that introspection is necessarily a reliable guide to what is stored in your own brain, or that what people tell you is necessarily a reliable guide to what is stored in their brains. (Boyd and Richerson 2005: 63)

For Joseph Henrich cultural items in many cases go beyond the understanding of the individuals "using" them. As he says, "the bearers of these cultural adaptations themselves often don't understand much of how or why they work, beyond the understanding necessary for effectively using them" (Henrich 2015: 27).

In many cases, it just seems wrong-headed to talk about a cultural habit as a representation of anything:

> The evolutionary biologist and anatomist Dan Lieberman has studied long distance barefoot and minimally shod running in communities around the globe. When he asks runners of all ages how they learned to run, they never say they "just knew how." Instead, they often name or point to an older, highly skilled, and more prestigious member of their group or community and say they just watch him and do what he does. [footnote 28: From conversations and correspondence with Dan Lieberman (2013–14)] (Henrich 2015:77)[53]

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[52] See Bargh and Chartrand 1999 for empirical studies on the limitations of conscious intentional control in our everyday live behavior and choice making.

[53] Here running is linked to hunting. Heinrich describes how hunting requires a very specific way of running, which implies being attuned to the processes of the prey animal, so that by changes in intensity of running a hunter can beat an antelope through fatigue or heat exhaustion, and how this was possible thanks to our capacity to keep water in containers (outside of our bodies) and "water finding knowing-how cultural packages" (Henrich 2015: 71-77).

To be sure, I must say Sperber sometimes waters the notion of representation down in such a way that we can take it to include something close to our notion of simple attunement to a constraint. At one point, he claims that

> This notion [of representation] does not presuppose that a representation must have internal structure, let alone language-like articulation. It does not impose any condition on the spatial and temporal location of representations, continuous or fragmented, inside or outside brains (other than what follows from the fact that representations are produced and used by cognitive devices and therefore must be within their reach—they don't just hover in social space). (Sperber 2006: 433)

And, talking about cultural transmission, he makes room for information that is transmitted implicitly, and not properly communicated, *not even implicitly:*

> Some information, being of more general relevance, is repeatedly transmitted in an explicit or implicit manner and can end up being shared by many or even most members of the group. (Sperber and Hirschfeld 2004: 40)

> Public representations play a major role in information transmission. Much information, however, is communicated implicitly, that is, without being publicly represented. Information can also be transmitted without being properly speaking communicated, not even implicitly, as when one individual acquires a skill by observing and imitating the behavior of others. (Sperber and Hirschfeld 2006: 149)

Their insistence on the notion of representation leaves unexplained, however, how implicit a representation can be and still count as a representation proper. I would put my approach this way: first we take implicit; then we take explicit.

Think about Z-lang and its grammar. In my view, the grammar of a language is the constraints that link situations with sounds, with meanings. The attunement to those constraints and to constraints that involve those sounds-meanings with real communicative situations is what being able to speak a language amounts to. In favor of the IVC, you can insist that these rules are information represented in the mind/brain;

even if it is implicitly so. Now, insofar as the rules of a universal grammar are part of our biological endowment, that is not the kind of linguistic knowledge we are talking about when we talk about culture. It is the knowledge of a particular language that we take as cultural knowledge: words and their meanings are "cultural items par excellence" (Claidière et. al. 2014: 4). I would add that, initially at least, our linguistic abilities as speakers of a particular language don't consist in the representation of some rules in the mind; we need not even represent ourselves as speaking a particular language. The representation of Z-lang as a particular language came with the encounter with foreign missionaries, and the explicit representation of the rules came even later.

As Barwise and Perry aptly put it:

> COOKIE means cookie. (…) The word COOKIE is itself an uniformity across situations, a feature which is common to utterances containing the word. Similarly, the property of being a cookie is common to all situations in which a cookie is present. (…) And it is this systematic relation between uniformities, between the word COOKIE and the property of being a cookie, that the child must learn to exploit if she is to know the meaning of COOKIE, to come when mommy calls "cookie," and to demand "Cookie!" when she wants a cookie. (Barwise and Perry 1999 [1983]: 13)

To know the meaning of a word, then, is to be attuned (s-attuned, we would say) to the relevant constraint (the relevant systematic relation) between situation types. And as they later add, this is not a matter of a conscious representation:

> Children use words to convey information about their wants and needs long before they are conscious of words as words. They can ask for a cookie by using the word COOKIE long before becoming consciously aware of the relation that makes this an effective strategy. But at a certain point they come to appreciate the relation and may even state "COOKIE means cookie." To do so they must recognize meaning as a relationship between words and parts of their environment. (Barwise and Perry 1999 [1983]: 18)

This constraint-based approach to the acquisition of word meaning is not incompatible with Sperber's claim that imitation is neither the only mechanism of transmission nor the fundamental one, taking for granted that the actual process of word-sound-meaning acquisition is a complex one and that learning word-sounds can reasonably be described as a process of imitation. I agree that "describing the acquisition of the meaning of a word as a case of imitation makes little sense" because meanings "cannot be observed and imitated; they have to be inferentially reconstructed." (Claidière et al. 2014: 4). If we can interpret the inferential reconstruction of the meaning of a word as the s-attunement to the constraint, then, there is no disagreement between the epidemiologists' view and my constraint-based view. And I don't see why we cannot interpret their claims that way:

> The child, for instance, might be able to infer on the basis of contextual evidence and expectations of relevance that the speaker who just said 'what a nice dog!' is referring to the terrier they are both looking at. Her task then is to generalize in just the right way the meaning of the word 'dog' to all and only dogs (i.e. not also to cats; and not only to terriers), that is, to reconstruct a meaning on the basis of limited evidence and of background knowledge. (Claidière et al.2014: 4)

If, on the other hand, we need to understand the inferential reconstruction of meaning as the re-construction of an explicit mental representation, then I disagree with epidemiologists (and memeticists). This difference would point then to another possible difference between my approach and IVC concerning the notion of transmission.

The contrast between the notion of constraint, on the one hand, and the notion of item, on the other, has other consequences. One concerns the ways in which culture gets shared by a population:

> People learn as individuals. Therefore, if culture is learned, its ultimate locus must be in individuals rather than in groups … If we accept this, then cultural theory must

> explain in what sense we can speak of culture as being shared or as the property of groups … and what the processes are by which such sharing arises. (Ward Goodenough 1981: 54)

In explaining culture, then, three notions seem to come to the fore: the notion of a group, the notion of sharing, and the processes by which sharing culture by the individuals in a group arises. The CBA and IVC have different takes on those notions. I start with the latter.

5.3. Transmission and attunement

In general terms, the IVC takes transmission as a process for sharing the items that constitute a culture. It begins with a representation and ends in a representation. The transmission of culture then requires representations, and representations require transmission if they are to be shared in a population, and thus, become culture. Another way to put it is that culture is the product of "social learning". This notion refers to an individual's learning influenced by other individuals and the psychological processes involved: of which "cultural learning" would be a subclass in "which individuals seek to acquire information from others, often by making inferences about their preferences, goals, beliefs, or strategies and/or by copying their actions or motor patterns" (Heinrich 2015: 12).[54]

The risk of circularity in the use of these notions seems evident: we shouldn't take "cultural learning" as the transmission of cultural items (memes and representations)

[54] In this quote, and throughout the rest of the book, Heinrich does not explicitly address the point that this kind of information is constituted by representations. Although in other papers discussing the other IVC, Henrich and Boyd 2002, and Henrich et. al 2008 it is clear that they are talking of representations in Sperber's terms.

while we take "cultural items" to be the items that are transmitted by cultural transmission.[55] This is what the IVC seems to involve sometimes, as long as it conceives culture as "that" which is transmitted by non-genetic means within a population so that it is broadly distributed. Hence, items that are not transmitted are items that cannot be considered cultural.

CBA, however, shows that this cannot be the whole story. Culture includes more than non-genetically transmitted items. But, as Morin observes, the IVC excludes that:

> Culture is made of ideas and practices that have reached a wide distribution in space or time (or both), and did so essentially for being transmitted (not for being frequently reinvented). This way of seeing is meant to break away from models where culture is nothing but a distribution, transmission being only a sideshow. It excludes "evoked" culture: widely distributed ideas and behaviors are not cultural if their spread owes little or nothing to transmission (in other words, if their distribution is not a diffusion) (Morin 2015: 36)

Morin excludes, then, anything that is not distributed via transmission, even if it is distributed in a population by non-genetic means. We can say that the CBA's main focus is precisely on accounting for those things, with constraints as its main theme: conventional constraints with distributed attunement to them. These constraints can be explicitly represented either mentally—after one realizes that something doesn't work (Yolanda's mornings) or by careful analysis (presumably by a social scientist)—or publicly—by communication or imitation (by explicitly "causing" the situations instantiating the constraint)—but they need not. As I've been trying to show, people can be s-attuned or aw-attuned to a constraint, without a representation, and then without

[55] These approaches appeal sometimes to *social learning*, which would include communication and imitation. "Imitation" is a term that encompasses mimicry (reproduction of behavior with no understanding of intentions or goal), emulation (the reproduction of the outcome of an action with no understanding of it as a goal), goal emulation or imitative learning (recognition of, and reproduction of the goal directed action). See Tomasello et. al. 1993, Tomasello and Carpenter 2005.

transmission being essentially involved. If we ignore this, we are leaving aside an important element of the subject matter of culture.

Let's talk about sexism again. It is beyond doubt that nowadays there are many representations (mental or public) with more or less explicit sexist and racial content that have been and are transmitted by communication and imitation, such that they are part of our cultural heritage.

Just by checking on the web I found the following utterance:

> "They have the right to work wherever they want to… as long as they have dinner ready when you get home."

This is attributed to John Wayne, with his use of "they" referring to women. But I could have easily attributed it to my grandfather. And we can take it as an explicit cultural representation that was somehow transmitted to Wayne and he distributed it to many people either by communication (in utterances that roughly preserved a common content) or by imitation. The success in distribution of such a representation is naturally explained as belonging to a complex of representations with remote origins, some of them forcefully expressed in the Bible:

> Likewise, teach the older women to be reverent in the way they live, not to be slanderers or addicted to much wine, but to teach what is good. Then they can urge the younger women to love their husbands and children, to be self-controlled and pure, to be busy at home, to be kind, and to be subject to their husbands. (Titus 2:1-10)

This text has been written and spoken out loud indefinitely many times in indefinitely many places for a very long time, and translated into many (maybe most) living and

dead languages.[56] Its cultural status is clear. It propagates a very specific content of what is or should be a woman's role. The fact that many people believe that prescriptions like that are right and that utterances like Wayne's are true is certainly a cause of sexist behaviors.

IVC is meant to capture this sort of cultural phenomenon. This is how the explicit prescription for women to have a "ready to eat dinner" for men has been made a cultural representation, public in many households and in public speeches around the world, and mental in many people's mind/brains. Wayne's utterance and the biblical passage constitute explicit cultural representations. Their distribution might have slowed down or stopped in some groups and societies, by the active denouncing of feminists; but not without opposition of people that still promote them, like Janusz Korwin-Mikke, an independent member of the European Parliament, who recently (March 1st, 2017) defended in a session of the Parliament that "women must earn less than men, because they are weaker, they are smaller, they are less intelligent."[57]

This statement has been reproduced in a memetic way through the media. It reached brains which did not have such representations, and in other cases the content of this representation matched with a preexisting belief in the host brain, which might trigger the production of a public representation expressing agreement with the content carried by this representation. Imagine a boy reproducing the utterance by mere imitation addressing his sister. This is the sort of picture that the IVC provides for the

[56] According to http://www.wycliffe.net/, the Bible has been translated partially into 2,587 languages and completely into 636 languages. The mission of this website is to "encourage and facilitate Bible translation movements that contribute to the holistic transformation of language communities worldwide." The group of people working on/for these projects would clearly count as a Christian religion memeplex replication "factory."

[57] This is a good example of a memeplex, in which some ideas ("week," "small," "less intelligent") come together to support one idea (women must earn less). They tend to appear together in every instance.

transmission of culture. The production of those public behaviors provides the input into the environment which allows imitation. Conceiving culture this way illustrates how such behaviors might trigger the mental representations of children, such that children too explicitly reproduce them by imitation in their games with toys.

The IVC works to some extent, but I claim that we should acknowledge the important role of attunement to constraints, if we want to have a more complete view of cultural transmission and evolution, and in this case, the transmission and evolution of sexism as an example.

To illustrate this, I'm going to use a personal example. I think I heard about Wayne's utterance, or better said, the content of his utterance, in its Basque or perhaps Spanish version, long before I read it attributed to John Wayne. I knew it was a common belief in my grandparents' time, and I may have heard a joke exploiting it. I possibly reproduced it linguistically sometimes.

Except possibly from my grandparents, that wasn't a belief held in my family. I've never heard my parents say anything like it, and they always reject this kind of representation. Nevertheless, after a memory exercise, I find that it was my mom who cooked most of the time, even if my dad is a good cook and he cooked on weekends and some other times.

After I grew up, I heard utterances similar to John Wayne's and thought about these issues, I came to I explicitly reject them. I'm quite certain that no one in my family has or will ever seriously utter such sentences and that no one holds that sort of belief. Yet my brothers and I realize that at our family reunions it is the case that women do the cooking. And while the men remain in their chairs chatting after the meal, the women clean up the table and do the dishes. So, whatever our attitudes towards explicit sexist

representations, there is some cultural constraint at work in our family, most likely, not only at family reunions:

- Women are in charge of preparing meals, setting the table, cleaning it up and doing the dishes. Men, especially Josu and his brothers, may occasionally help in this or that.

This constraint linking the family reunion situations with the various tasks to perform in those situations need not be represented in our minds. It is represented now in mine, when I'm explicitly thinking about it. But it was never transmitted via linguistic communication. Following the IVC, we can try to explain it as a case of imitation. The CBA explains it as a case of s-attunement to a conventional constraint, whose distribution makes it a cultural constraint. For years, we were not aware of its existence, because things seemed to work well more or less—though, who knows, the women in the family may think otherwise. Recently, my brothers and I became aw-attuned, that is to say, we became aware that we were attuned to some constraint that we didn't know exactly how to make explicit. The point is that we may consciously reject a certain explicit representation of a constraint, transmit that rejection by communicating it, and still be attuned to it. We can, and we do, act against our principles, so to speak, and it's not necessarily because we are hypocritical, but because we incur a sort of self-deception: we believe one thing, we are attuned to the opposite.

The CBA is meant to capture that. As the case of my family shows, the issue is not the holding of a belief as true (or a prescription as right) or not; it is not a matter of representations of this or that constraint. Admittedly, I would say that coming to realize that we are attuned to such constraints, and representing them, has been the reason why my brothers and I nowadays clean up (or we try to clean up) the table at our family events.

In this picture, constraints are neither representations nor information; they are relations between situations in the world. Although they can be represented in people's minds they do not have to be. That is, constraints are not items that are transmitted; and, therefore, the subject matter of culture, as long as it is constituted by constraints, is not distributed by transmission, but by attunement. The IVC does not admit this: "Does a tradition's transmission necessarily imply an exchange of representations? Yes" (Morin 2015: 48).[58] To the extent that it sticks to items (representations) and their transmission, the IVC is missing an important part of culture. That is one of my most important claims.[59]

5.4. The notion of sharing

As I have repeatedly said, in general terms "culture" amounts to what is shared by individuals of a group. In this sense, "being shared" seems to be a key feature of the subject matter of culture. This raises the question of how culture gets to be shared among individuals. And, for the IVC, the idea of culture being shared is directly related with the transmission of culture. I have argued that constraints are part of the subject matter of culture and that they are not transmitted. But the fact that constraints are not transmitted does not imply that they are not shared. Both the IVC and the CBA

[58] Morin defines culture as traditions: "culture is everything that is traditional, in other words, everything that transmission propagates across large scales of space and time." Morin (2015: 216)

[59] Perhaps, someone might rejoin that the IVC-notion of "representation" might include implicit, unconscious, sub-personal… representations, so that our differences would be more apparent than substantial. If so, it wouldn't be clear what their notion of transmission would amount to. It could be similar to attunement, and then, our differences could be just a matter of emphasis, as I discussed in Chapter 4, though I suspect they are not.

acknowledge that "being shared" is key to the subject matter of culture. But their notions are different. For the former it is directly related to transmission; for the latter it is directly related to attunement.

Before explaining the differences between the CBA and the IVC on the notion of "sharing" culture, let's sketch four ways to think about this notion.

The first one is about how we think about sharing physical objects. When we say that a cake is shared between four people what we mean is that each one has a piece of cake (ideally equally proportional). That is, the object shared has been split into pieces so that if we could gather together again all the pieces, we will have the complete shared object, in this case, the cake. In other words, we say that the four friends shared the cake because each one has a piece that belongs to the same object.

Nevertheless, it is obvious that there are things that we share without breaking them into pieces, such as a flat or the painting Guernica. This is a second way to think about sharing physical objects. In these cases, what we mean by "sharing" is that more than one individual uses or enjoys the same object.

A third way to think about sharing has to do with things like ideas, beliefs, and intentions. When I say that an idea is shared, I mean that each individual has an instance of the idea in their minds/brains because the idea has been copied or re-produced. That is to say, if two individuals share an idea, there are two instances of the idea in the world. In contrast, when four individuals share a cake, they do not end up with four cakes. While in the case of physical objects the amount of entities remains the same while sharing them, in the case of ideas, the amount of entities increase, that is, there are more tokens of the same type (an idea in this case). In other words, when individuals

share an idea is because they "have" in their brains "something" with the same (or minimally resembling) representational or propositional content.

The fourth and last way to think about sharing has to do with different objects having some properties in common. *Being blue* is a property that my cup and my pen share, but they do not share it because the property is divided between my pen and my cup, nor because either of them has copied (re-produced) it, as in the case of ideas.

The IVC notion of sharing is that of the second kind of those sketched out above. As we have seen in Chapter 3, culture for the IVC is a matter of items transmitted within a group, so that they get widely distributed within it. It is the fact that some items preserve their informational content that makes them cultural. This means that in the brains, and in the environment of the individuals of the group, there are instances of a given item with a minimally resembling content between them, and this is what it means for individuals to share a cultural item. Think about the story of *Little Red Riding Hood* (LRRH for short). If we have one individual with a mental representation of LRRH who tells the story to another individual, in whom a mental representation of LRRH is caused, we can say that they share the story of LRRH. There are now two mental representations in the world which have a minimally resembling content, and this is what the IVC takes to be the case when individuals share the same cultural item.[60]

In a nutshell, for the IVC a cultural item is shared because of the way in which it is transmitted. Individuals share an item like LRRH because they are part of a chain in the

[60] One might be tempted to say that the Guernica mentioned above would not be, according to this, a cultural item, but just remember that when several individuals see the painting, a mental representation (a mental image) of the painting is created in their brains and that there are several reproductions of the painting in pictures all around the world, all of which preserve (or resemble) the content of the Guernica.

transmission of the story: they heard it, a mental representation is produced in their brains and they reproduce it getting to share the cultural item with other individuals.

In contrast with this, CBA would adopt something like our fourth way of thinking about sharing. Constraints are systematic relations in the world (natural or conventional), and, thus, they are not "things" that we share because they are re-produced or divided up. Instead, they are shared because at least two individuals are attuned to them. There are not two constraints when individuals get attuned; there is only one. Constraints are not things in people's brains and this is why they cannot be shared as if they were items. Do not confuse the fact that we can represent constraints and share those representations when sharing the constraint. Think about Yolanda's Basque friends. They all share the constraint that, when someone greets them, they slightly move their heads to return the greeting. When this happens, there is not a constraint for each person greeting like that, there are three individuals attuned to the same constraint.

One might think that, concerning culture, the IVC would argue that its notion of sharing matches with the third way I have described. So that it would not be so different from sharing constraints. This is because, despite having many representations, they are of a cultural item. LRRH is one such cultural item which has millions of instances. The difference is clear, however: sharing a cultural item implies a proliferation of items (representations, memes…). That is, there has to be new instances of the cultural item in people's brains and in their environment. Sharing a constraint requires nothing like that.

Thus, the CBA notion of sharing is different because it does not involve the transmission of constraints or the multiplication of items. Individuals do not need to be related by a chain of transmission. Think about the following constraint. For some

people, situations in which there are police present, involves situations in which they are in trouble. There are groups of people in the world that are attuned to this constraint, not necessarily because the constraint has been transmitted to them, but because they live in environments where this constraint holds. Ask African-Americans in the United States, gypsies anywhere, or Basque youth. The key difference, then, is that a constraint can be shared by individuals coming to be attuned to it independently, or, in my terminology, with distributed s-attunement.

5.5. The notion of group

Culture is closely linked to populations of people, and as such talking about culture has involved talking about groups. The IVC does not address this issue directly, but according to what I have argued so far, CBA and the IVC would also have some differences depending on the relevant notion of group.

For an account that bases the subject matter of culture on items, cultural groups would be defined by the items (representations) that are in the brains and environment of individuals of a population:

A group can be characterized by the number of individuals who exhibit each different cultural variant. We refer to this as the "distribution of cultural variants" (or phenotypes) within the group. (Boyd and Richerson 1988 [1985]: 23)

Then, as we have seen with sexism, for the IVC only the individuals who have sexist cultural representations in mind and have sexist behaviors caused by such representations would constitute the relevant (sexist) cultural group, and the ones who

do not, would not be members of it. Thus, for the IVC, cultural groups vary with relation to cultural items.

If we think about culture in terms of constraints, taking conventional constraints and the attunement to them as being key to the subject matter of culture, then cultural groups are defined by the individuals that are attuned to the conventional constraints.

In the case of sexism, then, we do not need people to have sexist beliefs in order to form a sexist cultural group. It would be the people attuned to sexist constraints who would count. In other words, even if no one had sexist representations, but behaved in a sexist manner due to their attunement, then they would constitute a cultural group.[61]

This allows us to capture cases in which beliefs, knowledge, ideals and behavior mismatch: people with no racist beliefs show racist behaviors, due to their attunement to a constraint which leads them to such behaviors, and the opposite: people with racist beliefs act as if they did not.[62]

The difference between IVC and CBA is then that we get different cultural groups from the same population: one, which is defined by representations and the other which is defined by attunement. For the CBA, the classification of cultural groups regarding sports teams, religious groups or political ideologies might differ from the ones that the IVC would make.

As I said earlier, the IVC does not directly address the notion of group, but as it is, one can detect a sort of vicious circularity in their general view of culture. In their view, a representation is cultural if it is sufficiently distributed in a group. And a group is

[61] In the following lines, I will make a distinction between cultural sets and groups.

[62] This is an oversimplification since there are also other reasons that explain those mismatches. But the idea here is to show that attunement can be one of the reasons (amongst others) why it happens.

cultural if their members share a representation. But what is a group? Does the notion of group involve something else other than the individuals who form it? Or does it already require their members to share some representation? Maybe not just any representation, but a representation of themselves as forming a group? It is not clear how the IVC would answer these questions, but there is no such problem for the CBA.

First of all, I prefer to talk about sets and not groups of people. In a set, there is nothing over and above the individuals that are its members. The members of the set of humans do not have to share any other property than just being human. Subsets (except the empty set and singletons) of humans can be distinguished as *cultural sets* if and only if their members are s-attuned to the same conventional constraint. If the conventional constraint gets s-attuned by more than one individual, then we have not only a cultural set, but also a cultural constraint. In this sense, a gypsy, a Basque youth and an African-American can be taken to belong to the same cultural set as long as they are s-attuned to the same (cultural) constraint linking police and trouble without having any relation with regards to a chain of representation sharing, in the sense established by the IVC.

I distinguish this notion of a cultural set and the notion of a cultural group. And among the latter, I will distinguish between aw-groups and c-groups, following from my previous distinction between aw-attunement and fc-attunement. The difference between a mere cultural set and a cultural aw-group is just the difference in attunement to the constraint in question. One thing is to be s-attuned to a constraint, that is, without being aware that you are attuned to it and that some other individual is similarly attuned to it, and a quite different thing is to be aware that you share the attunement to the same thing, even if you cannot tell exactly to what. I suggest that something like that is present when two people belonging to some minority meet. There is a sense of

belonging together, of sharing something that is not easy to identify. Like the sense of belonging to a group who are most likely to be considered suspects by the officers at an airport security control position. You can be aware that you and some other people are the usual victims of some cultural constraint held by those officers, even if you don't know exactly what it is.

This still wouldn't be a case of what I call a culturally conscious group or c-group. I call a "cultural c-group" the groups whose members are fc-attuned to the same constraint. This is the sense in which a cultural group can be taken to form what Gilbert calls a plural subject (Gilbert 1989, 2006) and others call a collective agent or a we-agent (Bratman 1999 [1997], Korta 2004, Searle 1990, Tuomela and Miller 1988). The members not only share an explicit representation—a belief, a goal, an intention, or an itemized constraint—but they also share a representation of them as a collective or we-agent.

The CBA, then, gives us the tools to distinguish between the different senses of "group" that can be relevant to the explanation of culture; from mere cultural groups to fully conscious cultural groups, through self-aware cultural groups with varying degrees of explicitness about what they share and who they are as a group. And distinguishing among them is helpful for the social sciences:

Determining that a particular population is not a social group in a given sense is (of course) in no way to argue that it is not of great importance from a number of points of view. It is likely often to be helpful, meanwhile, to distinguish plural subjects from other populations, insofar as different things can be said about these different kinds of populations and their members. Insofar as economic classes, say, are not plural subjects, it is important to recognize that fact.[footnote 2: Recall Marx's famous distinction

between Klasse an Sich and Klasse für Sich (classes in themselves and classes for themselves), the latter alone involving some form of self-awareness. See e.g. Marx and Engels (1977: 214).]" (Gilbert 2006: 166-167)

Paraphrasing Gilbert, it is important to distinguish cultural groups *in* themselves (cultural sets) and cultural groups *for* themselves (cultural aw- and c-groups).

5.6. Conclusion

Throughout this chapter I have compared the IVC and the CBA with respect to some basic notions: 1) The IVC notion of item versus the CBA notion of constraint; 2) the ways in which culture gets non-genetically shared and 3) the notion of sharing itself and, finally, 4) the notion of cultural group.

I conclude that these differences show that the IVC and CBA are not incompatible conceptions. I rather think that they are compatible and, in fact, that the CBA offers the conceptual grounds that the IVC requires. The IVC notion of item requires the notion of constraint, which is conceptually primary. The IVC notion of transmission is just a special case of the ways in which we get to share culture, which I explain, in its most basic form, as distributed attunement to conventional constraints. And, similarly, for the notion of sharing and the notion(s) of group, the CBA seems to offer the appropriate foundations for the notions demanded by the IVC.

6. Conclusions

6.1. Introduction

I have shown that the fact that current naturalistic approaches —the Epidemiological, Memetics and the Standard Evolutionary approach— reduce culture to items, leads them to miss a key element in the subject matter of culture: an element that is best captured by the notion of constraints. Those three approaches represent what I call the Itemic View of Culture (IVC), that is to say, the view that assumes that culture is *a collection of items in people's brains and environments, that they share by social transmission among the individuals of a population through time*.

The IVC acknowledges that there is a *non-conscious* or *implicit* component in culture, an issue which is mentioned but which they don't provide an account for. While acknowledging these implicit features, their explanations are exclusively focused on explicitly representational items such as belief, ideas, tales, gestures and so on and so forth.[63]

The CBA addresses the issue by elaborating the concept of cultural constraints and the role that different modes of attunement play with respect to those constraints. We have distinguished three different ways of being attuned to constraints: simple, aware- and fully conscious. They differ in the degree of awareness of the attunement by individuals, and the availability of and explicit representation of the constraint. The

[63] The examples of implicit elements that they discuss are related to the ways of doing things that people have, but do not explicitly know how they do those things. See Henrich's (2015: 77) quote in Chapter 5.

various modes of attunement explain the crucial differences between *explicit* and *implicit* knowledge that the IVC assumes. The CBA accounts for the birth, evolution and death of cultural constraints, from fundamentally *implicit* to possibly *explicit* cultural information and knowledge. Moreover, the CBA avoids the risk of a vicious circle in the definition of culture and cultural groups, distinguishing mere sums, aggregates and collections of individuals from institutionalized cultural groups self-identified as such, and all the kinds of cultural groups in between.

The first intuition that led me to think that something like the CBA was needed was the realization that the IVC identifies cultural items by their informational content, without providing any theory of information.[64] A theory of information was needed and Situation Theory (Israel and Perry 1990, 1991) provides it. Situations contain and carry information due to the constraints relating them, and the flow of information requires attunement to constraints by organisms.[65]

With this as a starting point, a closer look at culture shows that the introduction of constraints as the subject matter of culture, involves a different conception of what culture is. The main difference between IVC and CBA is that the latter does not require representation-like items for exploiting and sharing information.

My point should be clear by now: it is a mistake to conceive of culture as merely the collection of shared items in individuals' brains and their environment. At its most fundamental level, culture is unrepresented, simple attunement to a conventional

[64] Which they do not seem to be working to provide, as Lewens says "at this point one might think it useful to look to philosophical theories to tell cultural evolutionists what they ought to mean by the notion of 'cultural information'." See Lewens 2015 Chapter 3, where he argues for a "don't ask/don't tell" standpoint. See footnote 36 in Chapter 3 of the present dissertation.

[65] See Dretske 1981, Devlin 1991, Perry 1993 [1990].

constraint. Everything else cultural, and especially representational cultural items, comes later, ontologically and conceptually speaking.

Nevertheless, although the CBA emphasizes the insufficiencies of the IVC, I think that they are mutually complementary. The CBA can count on the IVC to deal with cultural items and our explicit knowledge of them. But the CBA grounds the subject matter of culture, and gives us appropriate tools to tackle the aspects that the IVC throws into its *implicit dustbin*.

6.2. Cultural conflict

A conclusion that derives from the CBA is that, since situations carry information in virtue of the constraints to which individuals are attuned, then, the same situation can carry different information by the attunement of individuals to different constraints. Those are the occasions that may lead to misunderstandings and cultural conflicts

Let's imagine the following. Ahmed is a friend from ILCLI's Master Program. He is from Morocco and invited me to the marriage of his sister in Morocco. When we arrived I saw that everybody was dressed elegantly and seemed happy and excited by the event.

The sister of Ahmed, Nisrin, was marrying a man from a traditional family. I was surprised at how different the marriage rituals are in Morocco. Suddenly, after the marriage ceremony and after all family and friends gave their best wishes to the couple, Ahmed told me that he wanted to introduce me to his sister.

I wanted to congratulate her and transmit my good wishes to the couple. The sister and her husband were together when we approached. Ahmed told his sister that I am a colleague from his program of study in Donostia. I suppose that's what he said, because all I understood was "master" and 'Donostia', the rest was in Arabic except 'Josu.' Just after that, Ahmed said to me in English "This is my sister, Nisrin," I approached her with the aim of greeting her by giving her a kiss on each cheek; she stepped back and extended her hand to greet me, and at the same time, her husband shouldered his way in between to stop me.

After this I was paralyzed like a stone and realized that I had done something wrong. Many people were looking at us, especially me, with a furrowed brow that usually does not mean anything good anywhere (I believe). The husband shouted at me in Arabic and Ahmed asked me to move away while at the same time talking to the husband.

The fact that I am a foreigner, that Ahmed's close family is not strongly traditional, and that I am a "guest and friend of the brother of the wife" lessened the trouble, and I was not kicked out of the ceremony, and the trouble did not last much longer. However, they remarked that this situation was inconceivable to them "No Moroccan guy would do that ever! It is like a taboo."

But what was going on there from a CBA perspective? In a nutshell, the same situation carried not just different, but conflicting information for the people in it, because they were attuned to different constraints. I was attuned to a set of constraints (if someone introduces you to a woman then you kiss both cheeks to greet her in order to be polite), and the rest of the people there were attuned to a different set of contraints

(it is disrespectful to the woman, and both families, for a man, who is not from the family to kiss or touch the fiancé at a wedding).

Given that I am at a wedding, that Ahmed presented Nisrin to me, and I am a man and Nisrin is a woman, I got the information that I had to kiss both cheeks of Nisrin. And so I expected the following flow of information:

> I_E: The fact that Josu kissed Nisrin's cheeks carries the information that Josu is being polite to Nisrin and Ahmed.

This would be the information any individual of my culture would get. But this was not the case for the other people at the wedding, except for Ahmed, who knows how men greet unknown women when first introduced in the Basque Country.

The perspective for Nisrin, her husband and most people at the wedding goes differently. The information that they got was:

> I_{AS}: The fact that Josu attempted to kiss both cheeks of Nisrin carries the information that Josu is being disrespectful to Nisrin and her family.

The point of this example is to illustrate a case in which the information available to individuals differs due to their attunement to different constraints; where the situation is the same for all individuals. The constraints to which they are attuned cause them to get different information, which drives how they act.

This is why I conclude that culture is more than just information shared or transmitted repeatedly. Culture is the set of constraints to which individuals are attuned to (*s-, aw-, or fc-)* that makes available certain information to individuals or "makes" them behave in specific ways.

> As species we evolve in a particular setting, one in which certain conditions were, by and large, fulfilled. As long as we stay in a setting where these conditions are satisfied, the constraints to which we are attuned can be exploited to get information about one situation from another. However as we stray from that setting, or if the setting is radically changed, we may mistakenly rely on these constraints in situations where the requisite conditions are not met, thus in situations where the constraints may no longer hold. (Barwise and Perry 1999 [1983]: 99).

6.3. Further research

The CBA needs to be developed beyond the limits of this dissertation,. Some possible lines of investigation are:

1) Which role do constraints play in the recognition of an artwork, as an artwork, and not a mere artifact?
2) What are the cultural constraints in art appreciation?
3) Are there universal cultural constraints?
4) Are techniques cultural constraints or are they cultural items? Or are they just entangled natural constraints wearing a cultural costume?
5) What is the origin of the cultural constraints that make fiction such a central component of culture?

However, I know my limits, and so I will look in brief at some questions about which I have a clearer idea.

6.3.1. Cultural transmission and theories of communication

Communication is one of the main mechanisms of transmission of the informational content of many cultural items such as ideas, beliefs, encyclopedic knowledge and so on. This suggests the following question: What difference does it make to our account of culture, which theory of communication you adopt?

This was somehow implicit in Sperber's (1996) book, where he says that in developing Relevance Theory (1986/1995) with Deirdre Wilson, he took that theory as a "theory of human communication and as a general approach to many issues in cognition. My initial interest in our collaborative project had to do with the role communication plays in culture." (Sperber 1996: vii).

However, developing his Epidemiological approach, he does little more than suggest that transmission by communication would tend to preserve his relevance principle of "effect-effort ratio," which should show then that cultural representations that are transmitted by communication are the ones "selected" by this principle:

> [In] the process of transmission, representations are transformed. This occurs not in a random fashion, but in the direction of contents that require lesser mental effort and provide greater cognitive effects. This tendency to optimize the effect-effort ratio—and therefore the relevance of the representations transmitted (see Sperber and Wilson 1986/1995)—drives the progressive transformation of representations within a given society towards contents that are relevant in the context of one another (Sperber 1996: 52-53)

As Relevance Theory goes, one might expect that he is thinking of the hearer's side of the cultural transmission chain we looked at in chapter 3, but he actually has the producer's side in mind:

> It is plausible that individuals should be equipped so as to tend to optimize the effect-effort balance not just on the input side, but also on the output side. Public productions, from bodily movements, to speech, to buildings, even when they are modelled on some previous productions, are likely to move towards forms where the intended effect can be achieved at minimal cost. (Sperber 1996: 114)

Even though, he extends here the scope of Relevance Theory to "public production" which go beyond language and includes behaviors and artifacts, Sperber did not develop

that "initial interest" in depth. This is why I think that an interesting line of research would be the following:

The CBA of culture is rooted in Situation Theory, and one development of it towards a pragmatic theory of communication was *Critical Pragmatics* (Korta and Perry 2011). The point is to see if Critical Pragmatics offers a better theory of communication as cultural transmission. I think that the content-pluralism of Critical Pragmatics and the notion of unarticulated constituents can be a key to understanding the importance of constraints in explaining the role of *implicit* information in communication and what is stable vs. what is variable in chains and networks of utterances.

6.3.2. Social ontology in culture

If Searle is right and "[w]e are confronted with a social and institutional reality that is for us objective, yet exists only because people believe it exists" (Searle 2007: 11), one of the issues I would like to address is the issue of *cultural identity*. If the CBA is right, how do I build my cultural identity, given that I am a member of so many cultural groups many of which I am aware of, but also many of which I am not aware of? Does my cultural identity involve a multiple identity?

The CBA, and more precisely the fact that we are s-attuned, aw-attuned and fc-attuned to cultural constraints, might provide some insights into the topic of the social ontology of collective agents, actions and intentions (Bratman 1999, Epstein 2015, Gilbert 1989).

6.3.3. Social epistemology

On the other hand, it would be interesting to look into the links between IVC, especially the epidemiological approach, and the role truth might have in it, both as a property that may influence their transmission and endurance, and also in relation to the study of the mechanisms of cultural transmission as devices of knowledge transmission. Current social epistemology (along the lines of, for instance, Goldman 1999) might be fruitful in the study of the effect that the "veritistic value" of a cultural representation might have on its propagation.

It would also be interesting to research what effect CBA would have on the issue of the uniformity (diversity) of culture(s). This analysis would constitute a test to discover if social epistemology is mainly itemic, and if so it would be interesting to investigate what would be a CBA of social epistemology taking into account the distribution of attunement, and the role representation plays in that distribution it.

Fortunately, the future is open and, whatever happens, paraphrasing the poem that opens this thesis, repeating what our elders said is a way of keeping their words alive.

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